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DONALD ROBERT MCTAVISH

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NAME OF SUPERVISOR/NOM DU DIRECTEUR DE THÈSE

RODNEY SCHNECK

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THE UNIVERSITY OF ALBERTA
STRUCTURE AND PROCESS IN NURSING UNITS

BY

(C) DONALD ROBERT MCTAVISH

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN
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THE UNIVERSITY OF ALBERTA
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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled STRUCTURE AND PROCESS IN NURSING UNITS submitted by Donald Robert McTavish in partial fulfilment of the requirements for the degree of Master of Business Administration.

Rodney Atwood
Supervisor

P. Overton

J. E. Johnson

Date March 26, 1979

TO
JLM, KLM, BLM.

ABSTRACT

The main purpose of this study was to investigate structure and process within nursing units and to determine the relationships between the two concepts. The need for this type of investigation was seen from two perspectives. First, conventional theory proposes that structure should vary in harmony with technology and that process should be related to structure as supportive mechanisms to accommodate the variance in technology. Second, descriptions of nurses work to date have been incomplete, and have not resulted in a comprehensive enough base for comparative analysis of nursing specialties.

The unit of analysis was the nursing sub-unit. Nine types of units were included, namely, medical, surgical, intensive care, rehabilitation, auxiliary, paediatric, psychiatry, obstetrics and rural. A total of 157 sub-units in 24 hospitals in Alberta, Canada participated in the study.

Data analysis was performed on unit scores, obtained by averaging nurses' responses on each item for each unit. In addition responses from headnurses and nursing administrators were also analyzed. Statistical techniques used were factor analysis, analysis of variance and contingency tables for dichotomous variables.

The analysis of the data demonstrated that, in general, the nursing units were characterized by a common structure. In addition, process was found to be almost constant across the units.

Although some statistically significant differences were found, they were minimal and tended to involve the units falling at the extremes of the scales of measurement. The overlap created by units belonging to more than one subset of units on a particular scale was so prevalent as to make differentiation very difficult.

It seems that socialization of nurses during training, the power of physicians, unit interdependencies and administrative policies may overwhelm the tendency of technology to force variety in structure and process.

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This work was completed while the author was on education leave from Alberta Transportation.

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CHAPTER I

INTRODUCTION¹

Although a great deal of work has been done in developing theories of, and conducting research into, the structural aspects of organizations, scant attention has been paid, and the literature is sparse, on the relationships between structure and process at the subunit level. In fact, while there appears to be general agreement as to the basic elements of organizational structure, the basic constituents of process are not well defined.

This work should be viewed then as exploratory in nature with the hope that it will help, first of all, to generate some thought as to what comprises process and secondly to add to the general fund of knowledge of the elusive nature of the relationships that link it to structure.

In this research the aims are two. The first is to investigate the concepts of structure and process as they exist in nursing units and thereby to establish profiles for the

¹ The data utilized in this research is part of a larger study: See Overton, P. and Schneck, R., An Inquiry Into The Relationships Among Environment, Technology, Structure, Process and Behaviour Within Nursing Subunits. Research funded by: a Canada Council Grant S76-0082, Division of the Humanities and Social Sciences, Ottawa; and the J.D. Muir Research Fund, Faculty of Business Administration and Commerce, University of Alberta, Edmonton.

units along the dimension of the concepts. The second purpose is to determine and document the relationships between the dimensions of structure and process across the nursing units.

Structure is measured in terms of role specificity, decentralization of decision-making, horizontal and vertical complexity, formalization of evaluation and in terms of role and rule formalization. Process is investigated in terms of leadership, communication, coordination and control.

These dimensions were the subjects of questionnaires to which responses were requested from nursing staff, head nurses and nursing administrators in nine types of nursing units in a sample of 24 hospitals in Alberta, Canada. The types of nursing units included medical, surgical, intensive care, rehabilitation, auxiliary, paediatric, psychiatric, obstetric and rural.

STRUCTURE AND PROCESS - THEORETICAL CONSIDERATIONS

"Dynamic processes, not static objects, are the ultimate essence of human life. Social order grows out of the constant patterning of social interactions and relationships, and all social structure must be seen as particular instances of on-going processes." (Olsen 1968). Buckley (1967) presents a similar view when he contends that structure is an abstract concept and that it is process, that is to say, the interactions of the parts of a system, that is the salient feature of organizations. Process, he argues, is a determining factor of structure.

Until recently, as Hall (1977) suggests, organizational studies have concentrated on the concept of structure. In very simple terms his conception of structure refers to "what" an organization is like. Investigations of process he contends, relate to "why" an organization is the way it is. Olsen (1968) directs his attention to "how" social phenomenon occur. Both have a focus on process, the dynamics of relationships. Schein (1969) notes as well that the thrust of the majority of theory and research to date has been toward the structural elements of organizations. His criticism of this approach is that it does not present a complete view and that it is crucial that process be included in analyzing organizations. Although rather obvious, he notes that the network of positions, which constitute the formal structure of an organization are occupied by people. What has

apparently not been so obvious is that each individual in an organization injects his own attitudes, values and styles and as a result patterns of relationships occur that may or may not be similar to the structural elements.

Van de Ven (1975), in developing a theoretical framework for organizational analysis, provides a definition of complex organizations. His view is that "a complex organization is an open social action system consisting of multiforms of structures and processes". The trenchant point here is his inclusion of the word processes as a part of his definition.

Reviews of the literature reveal that, with relatively few exceptions, structure and process are not analyzed as separate and yet related characteristics of organizations. A great deal of empirical research and theory addresses the concept of structure and there is general agreement as to what constitutes structure. Process on the other hand appears to be a rather nebulous concept and as Overton and Schneck (1977) point out, the differentiation between structure and process is not clear in existing theory and there is some doubt as to whether we shall be able to distinguish between the two.

But what is structure? And what is process? Here we will not define these two terms in the rigorous detail required for the empirical research that will be analyzed in later chapters. Rather we shall provide a review of the attributes that others have used to describe these concepts.

STRUCTURE

Hall (1977) sees organizational structure as having three main attributes. These are complexity, formalization and centralization. To further elaborate, complexity, in Hall's terms, is comprised of horizontal differentiation (the subdivision of tasks), vertical complexity (the depth of the hierarchy) and lastly spatial dispersion.

Horizontal differentiation introduces the need for coordination. That is to say, in order to achieve some unity of direction for the organization as a whole it is necessary to mold the outputs of each subdivision into a final product. The need for coordination will also exist with respect to the activities of each group to ensure that there is a common bond that unifies the efforts. Horizontal differentiation will also introduce the need for control which is intimately connected with coordination. This connection exists because control is necessary in order that managers can obtain information about deviations that allow them to provide coordination.

Vertical differentiation, according to Hall, is a reflection of the distribution of authority in a hierarchy although he cautions that the analyst must obtain indepth knowledge of an organization because of the possibility of what might be called pseudo-levels. Such levels may exist for the purpose of satisfying members of an organization in terms of title, remuneration or other benefits that are justified by higher rank.

His basic conclusion though, is that vertical differentiation is rather easily measured, for example, by simply counting the number of levels of hierarchy.

Both horizontal and vertical differentiation, viewed as structural elements, give rise to problems of communication, control and coordination which, as we shall later see constitute major elements of what he sees as process variables.

Spatial dispersion is included in Hall's concept of complexity. Although he sees it as possibly being a form of horizontal or vertical differentiation, he makes the distinction in view of the fact that some organizations will perform certain tasks in a similar fashion but in widely dispersed areas. Dispersion obviously promotes the need for processes to control, communicate and coordinate, and if geographical separation, for instance, is large the issue becomes more critical.

Formalization in Hall's scheme refers to rules and procedures organizations develop to deal with the situations they face. When situations occur with substantial frequency, rules and procedures are especially useful because of the savings in time and effort that will accrue to the organization. Formalization is not, in and of itself, positive or negative. Its application may be though, because it has the effect of removing discretion. In some cases that is absolutely essential because there may not be time for discretionary action or if random behaviour is allowed disastrous consequences could ensue. As a concrete example, it would be folly to allow pilots to fly with complete discretion.

They are sharing space with others and it is therefore necessary to stipulate the conditions under which a particular aircraft may operate. It should be noted that formalization does not always remove discretion completely. But it does set limits which restrict deviance or provide a standard for measuring deviance. Hall sees the need for formalization only to the degree necessary to provide congruence between the behaviour of the individuals and the task requirements of the organization.

Centralization in Hall's model is very closely tied to the way in which power is distributed in an organization. It is a very important element in his view in keeping with the idea that conflict in organizations is very often the manifestation of power struggles. Power as we shall see later is one of Hall's elements of process.

Van de Ven (1975) also uses the term complexity by which he means the amount of specialization and degree of personal expertise. Formalization (i.e. standardization of procedures) and centralization (hierarchical decision making) also appear in his model and he asserts that there appears to be general agreement that these are the major dimensions of structure. His contention in this latter regard is based on the works of Weber and research by Blau (1971), Child (1973), Hage and Aiken (1967), Hall (1962), and others. Van de Ven notes that except for Hall, researchers have applied their conceptualization of structure at the macro or organizational level. Hall (1977) has said that one is wrong to assume, as has so often been done, that there is one structure in

an organization. He recognizes, as does Van de Ven, that within what one can visualize as an organization there can be more or less variation in the structure of subunits and that the variables of complexity, formalization and centralization are not rendered useless by a focus at the micro level. This is a crucial point that bears directly on the research to be analyzed in later chapters.

Olsen (1968) contends that the three basic components of structure are size, complexity and formalness. His use of size as a basic structural variable is at odds with the writers we have discussed above. Size is no doubt an important characteristic of organizations but for the most part it seems that size can be more fruitfully viewed as a determinant of structure and not a basic element of it. Blau, Heydebrand and Stauffer (1966) view it in this fashion and their research indicates that an increase in differentiation or complexity, both horizontal and vertical, is related to an increase in size. With respect to size there is not general agreement as to its importance or impact on structure. For one thing there is the problem of the concept of size. If size is determined to be the number of employees that may not be sufficient. Perhaps the number of customers should be included. Another indicator of size might be the financial assets of a firm. The basic lesson here seems to be that the manner in which size is defined is open to much debate from a conceptual viewpoint.

The Aston group (1963) also found size to be a major determinant of structure. Their studies led them to conclude that

increases in size led to increases in structuring of activities and a dilution of authority. On the other hand, Pondy (1969), in his review of the literature relating organizational size and the administrative component, came to the conclusion that it is technology which plays the more important role in the determination of structure. Hall and Tittle (1966) also question the impact of size. In their study, which included 75 organizations of various types, they found inconsistencies in the relationships between size and structure. They found as well that there were only weak positive correlations between size and formalization. Their summary conclusion is that "neither complexity nor formalization can be implied from organizational size" and that "size may be rather irrelevant as a factor in determining organizational structure". Still another critic of the Aston findings is Aldrich (1972). Having reanalyzed the Aston data he suggests that size is in fact a dependent variable. That is, highly structured firms need more workers. Clearly there is much debate on this issue but, such debate notwithstanding, one cannot therefore assume that size is not important. For the sake of coming to some resolution of this question, data on size should be collected in further research.

Complexity in Olsen's theory relates to the diversity and interdependence of parts of the organization. There does not seem to be much disagreement here with the conceptualization of other students of organizational analysis. Formality constitutes the third main structural element that Olsen describes. His emphasis

is on the rigidity and specificity of organizational interactions. This view is in substantial agreement with the way in which others have described formality.

We shall proceed from this point with the proposition that the concept of structure is composed of three elements. To wit, formalization, complexity and centralization. With this composition of structure, we should make some qualifying remarks. First, we would expect that different organizations will exhibit varying degrees of formalization, complexity and centralization. Further we do not assume that the three are positively related. Nor do we imply that they will, for any one organization, be characterized by equivalence in variance. And lastly, there does not seem to be any reason, a priori, why these elements of structure should not exist at the subunit or micro-level of an organization.

PROCESS

Now let us turn our attention to the concept of process. As has been mentioned earlier, there has not been much theoretical or empirical work done in this area. Process itself is not well conceptualized nor are its linkages to structure well defined. Nevertheless there is some literature available and we will now review that which is most pertinent to the analysis of the research data to be undertaken in a later chapter.

Van de Ven (1975) uses work and information flows as process variables. By work flows he means the "materials, objects, or clients and customers that are sent or transported between people within and between organizational units." Information flows in Van de Ven's model are the messages about the units or objects of the work that move between unit members and between units. Such messages can take a variety of forms. For example, signs, rules, reports, meetings, telephone calls, personal discussions and so on. Van de Ven states that work and information flows are two very important organizational processes because they are a description of "basic patterns of organizational activities." His basic units of measurement for these two processes are direction (i.e. sender and receiver) and frequency of work and information transmission. The measure of frequency of transmission and reception by a unit, he proposes as good indicators of the power of the unit within the organization. The higher the frequency the greater the power. At a macro level, Van de Ven sees the

direction of work and information flows as reflecting the network of relationships in an organization. Extensive work flow networks are indicative of high structural differentiation. The information flow network, he hypothesizes, will exist to accomplish the tasks of coordination and control of the work flow relationships. Here we see the shaping of relationships between structure and process.

Hall (1977) refers to power and control as elements of organizational processes. He notes that power levels may be specified in advance or developed as relationships between units, and members within units develop. This he maintains is indicative of the "close connection" between structure and process.

Structure places constraints on the exercise of power because of the way relationships are defined by the structure. But keeping in mind Olsen's view that processes are the dynamics of organizations it is not unreasonable to assume that process may in fact modify structure as relationships develop and mature.

Hall also ties power and control into the horizontal and vertical differentiation in an organization. Variances in power are typically seen, he maintains, along these two structural axes. Although power and control are typically thought of as radiating downward from the top and indeed many organizations are characterized by this, Hall also notes that power can flow upwards from lower levels in an organization. Prime examples of this might be seen in labour unions or political groups where the head of the organization receives power as a result of support from the

rank and file. The crucial point is that such support can be withdrawn relatively easily. This reinforces Halls discussion of power being a phenomenon of mutual dependence. Perhaps obvious, but also at times neglected, is the realization that power involves a sender and a receiver. Without the latter, power is for all intents and purposes, non-existent.

Power, control and conflict are closely related. As power is delegated or established within a network of structure it becomes important to control activities, relationships and decision making in order that some common goal(s) be met. As well, delegation of power or authority has a diluting effect and counteracting processes of control are required. Downs (1967) points out that organizations must undertake control activities that are aimed at securing the "coalition of individuals" necessary to achieve the goals. He also contends that control by those at the top of an organization becomes increasingly difficult to achieve as an organization grows larger. With this sort of problem in mind he postulates that control process will be manifest in the structural element of formality of roles, regulations and rules and measures of performance.

A very real problem with control processes is the possibility that they will introduce pathologies into the organization. As Cammann and Nadler (1976) point out, control systems, although intended to provide coordination can become instruments that encourage dysfunctional consequences as organizational members direct some part of their energy to subverting the mechanisms.

The net result is that control in fact is decreased. Their conclusion is that while it may be important to have technically sophisticated control systems, it is also crucial to have them be effective and used by management in constructive ways.

Conflict is another organizational process to which Hall (1977) directs his attention. Conflict between units and within units seems bound to occur. Different units and members within units can be expected to display variance in their values, perspectives, attitudes and behaviour. On the face of it, conflict seems to be an issue to be avoided. However, in the scheme developed by Lawrence and Lorsch (1967) conflict plays an important role. In their research they demonstrated that a complex environment (for example a great deal of competition) will lead to differentiation of tasks (i.e. high complexity) which in turn results in conflict because of the variance in orientations (for example time) of the units. What seems surprising though is that they found that the most successful firms were those who recognized the need for differentiation, structured themselves accordingly and were characterized as a result by discordant relationships between various units. Perhaps their key finding though was that the successful firms were those who established mechanisms of integration to resolve the conflict. They duly recognized that there was no one best way to achieve conflict resolution in order to achieve effectiveness but that nevertheless an organization, if it wishes to be effective, must use processes of mediation.

The resolution of conflict is essentially a coordinating function although in extreme cases it can be one of arbitration. Within a given structure there is a need for coordination and this need increases as differentiation occurs. The goals of an organization demand unity of effort and yet weighing heavily against this is the need to introduce varying degrees of horizontal and vertical complexity because the environment or the tasks dictate such structure. In order to bring the separate pieces together, organizations must develop mechanisms of coordination. However easy it may be to agree that coordination is required, its implementation can be extremely difficult. What then is coordination and how can it be achieved?

Khandwalla (1977) defines coordination as "the management of interdependence in work situations". One of the methods he suggests is hierarchy, that is structure. Several units or divisions may report to one superior upon whom is placed the onus to maintain proper phasing of their activities. Rules, and procedures are other common means of coordination. Khandwalla suggests that these methods of coordination may be especially useful where different groups have equivalent status and authority. Having a written policy can eliminate the conflict that could occur between such units. The danger of course is that the policy may be out of date or that the groups should not be of equal status. The policy, meant to act as a coordinating device, may then be dysfunctional.

Planning has long been touted as one of the major functions of managers. Khandwalla suggests that this is another process of coordination. Mintzberg (1975) challenges this (along with other classical assumptions of the management process) by asserting that while we commonly believe a manager is "a reflective, systematic planner," in fact "study after study has shown that managers work at an unrelenting pace, that their activities are characterized by brevity, variety and discontinuity, and that they are strongly oriented to action and dislike reflective activities." Khandwalla suggests other mechanisms including group decision-making, incentives to collaborate (e.g. profit sharing) and indoctrination which is probably best exemplified in religious and military organizations.

Thompson (1967) described coordination in terms of dependencies of which he classified three. These were reciprocal, sequential and pooled dependencies. A buyer and a seller exhibit reciprocal dependence. Each needs the other to accomplish the transaction. Sequential dependence is seen in assembly line operations where, while there is a direct connection between two adjoining activities, tasks further removed up and down the line exhibit only indirect links although to be sure, the end of the assembly line cannot function without the beginning. Pooled dependence occurs when organizational members or units call upon the same pool of resources. Records management services may be centralized in an organization but used by all or many of the divisions or subunits.

Van de Ven, Delberg and Koenig (1976) undertook research which involved the investigation of coordination at the work unit level rather than at the management or macro levels of the organization. In their view there are three modes of coordination. The first is "impersonal" where coordination is accomplished by means of plans, schedules, rules, policies and standardized methods of communication.

The second mode of coordination used by Van de Ven et.al. is "personal". This is basically a one on one relationship where adjustments are made based on information exchanged between two organizational actors. This mode of coordination would probably exist where there is uncertainty to the extent that standard operating procedures do not fully cover the contingencies of the activity or problem at hand. The last mode described by Van de Ven et. al. is "group" coordination. Here again one would expect even greater uncertainty and a requirement for information from several sources in order to undertake work activities or to solve problems. These last two modes (impersonal and group) fit neatly into Thompson's concept of the feedback process by which two or more unit members adjust their activities based on information they receive during their interaction.

Van de Ven et. al., having postulated these modes, structured their research to investigate the impact of task uncertainty, task interdependence and unit size on coordination. Their basic finding was that task uncertainty played a major part in the determination of the coordinating role that a work unit chose.

Thus for example where uncertainty was high the work unit would substitute personal or group for impersonal coordination. They also found that as task interdependence increased, there was an increase in the use of each of the modes of coordination. One can envisage that the use of standard operating procedures would be high where interdependency was high depending upon the uncertainty of the tasks involved in the relationship. In their study they discovered that as size (of the work unit) increased there was more use of impersonal coordination and use of hierarchy. Beyond a work unit size of 10 however, they found less use of hierarchy. An interesting point is that they found the use of horizontal communication channels were invariant with respect to size.

Communication is intimately connected with control and coordination. It is through the process of communication that information is exchanged so that activities can be initiated, monitored, controlled and coordinated. Hage, Aiken and Marrett (1971) studied the effects of organizational constraints on communication. Their work involved the use of the structural elements of complexity, formalization and centralization. Their findings in health and welfare organizations was that the frequency of communication was negatively related to complexity, formalization and centralization.

Other research indicates a tie between structural elements and the process of communication. Gerard (1957) established experimental groups of four with one member designated as the boss. His finding was that the "boss" sent more messages to

"subordinates" than the "subordinates" sent to the "boss".

Barnlund and Harland (1962) and Allen and Cohen (1969) found that at high levels in an organization communication was horizontal in nature. That is, high status members communicated with their peers more often than they did with lower status members. On the other hand they also found that at lower levels, communication tended to be vertical and upwards. Low status members communicated with high status member more often than they did with other low status members.

Bacharach and Aiken (1977) conducted a study in 44 administrative bureaucracies in Belgian cities. Their aim was to try to predict the effects organizational constraints would have on both the direction and frequency of communication. Specifically they concentrated on verbal communication claiming that it is the most spontaneous and common form of communication in organizations. They concerned themselves with two status groups in their research, namely department heads and subordinates. Their work indicates that the frequency of communication by department heads is little affected by structure (horizontal and vertical complexity, size) with the exception of boundary spanning activities (liaison or linking positions) and decentralization of authority. At the lower levels however, organizational dimensions explained up to 50 percent of the variance in the frequency of subordinate communication. Their data also demonstrated that the communication by department heads was primarily directed downward. Subordinate communication

however showed a tendency to be omni-directional. This work of Bacharach and Aiken lends support to our contention that process (at least communication) and structure can be studied at lower levels in organizations. This and the range in communication scores (19.9 to 0.33) leads us to suspect that subunits will manifest differences in communication and that it may be possible to find linkages with structural elements.

Downs (1967) devotes considerable attention to communication in bureaucracies. At least to the extent that the organizations we will study are bureaucratic, his observations are pertinent. He contends that the vast majority of communications in large organizations is informal. Informal communication refers to the process of transmitting information via mechanisms that may be only coincidentally related to the formal authority i.e. structure of an organization. Such communication is not characterized by published organization charts, formal operating procedures, manuals and so on. It is his contention that subformal communication will normally occur along horizontal axes of an organization. Downs points out the subformal communication is an extremely useful device since it allows peers to express their views without the fear of their expressions becoming part of the organization's official position or policy.

It is Downs' view that the greater the formality of structure designed into an organization, the more likely the researcher is to find a pervasive subformal network of communications. This is especially true when interdependence between activities is high

and when there is high uncertainty associated with functions of the organizations. Uncertainty could be found for example where there is a low degree of formality in the definition of activities or may show up as a high degree of horizontal and/or vertical complexity. Communication is an expensive proposition both in terms of money and time. Where information is required quickly, "following channels" is restrictive and one would expect group members to establish subformal communication channels between members of their own group or subunit and, depending upon interdependence between various work units. When conflict between work units or within work units is present, Downs suggests that more formal mechanisms of communication will be used. Carefully worded reports, manuals and memoranda will characterize the communications.

Downs also discusses an important aspect of communication, that being distortion of information as it flows through the communication network. In vertical channels (although Downs suggests the same phenomenon can exist in horizontal communication) varying amounts of distortion are introduced into messages as they flow up (or down) the hierarchy. Some distortion may be accidental, other purposeful and some may be positive or negative in the sense that one distortion may counteract a distortion at a different level. With the aid of some simple mathematics Downs shows how, in an organization with 7 levels of hierarchy and a screening factor of 50%, the top official may receive a message that contains only 1.6 per cent of the

information collected at the lower levels. Antidistortion mechanisms can be used to counteract the manipulation of message content. Senior officials may resort to duplication in communication channels, external sources of data and overlapping areas of responsibility. Distortion is probably limited to some extent by virtue of the fact that various levels in the hierarchy come to know what the next level would like to hear or read. A similar process may exist in downward communication.

Antidistortion mechanisms are expensive though, and where possible one would expect to see formalized procedures instituted. For example where tasks are routine and repetitive, a coding structure may be established to relay information accurately. Similar devices may also be used where rapid transmission and quantification is necessary and possible.

Communication is truly a complex process because it takes so many forms, is so pervasive and so important. The above discussion has certainly not been exhaustive nor comprehensive. Such treatment is beyond the scope of the present work. Nevertheless, we suggest that communication is certainly a process of organizations and, however nebulous at the present stage of research, there may be linkages to structural elements.

The next and last organizational process we propose to examine is leadership. Leadership is a subject for which there exists a great deal of opinion, information, theory and research to the point, as Hall (1977) notes, that it is even "occasionally practised."

Hall (1977) says that popular belief holds that if anything is to be understood about organizations and if anything is crucial to their existence, it is leadership. To the contrary, he argues that leadership is severely limited by structure, power and environmental conditions. In most cases, he contends "changing leadership is little more than a cosmetic treatment."

Notwithstanding these remarks, he notes that in some situations leadership is important. His view is described by Etzioni's (1965) definitions of leadership which involves "the ability, based on personal qualities of the leader, to elicit the followers' voluntary compliance in a broad range of matters. Leadership is distinguished from the concept of power in that it entails influence, i.e. change of preferences, while power implies only that the "subjects' preferences are held in abeyance."

Hall subscribes to Selznick's (1957) view that "leadership can occur in any group or organizational situation". In Selznick's model leaders have four tasks. They are to establish the mission and role, to decide upon means to ends, to defend the organization and to establish methods of resolving internal conflict. Etzioni (1965) has developed a model of leadership that has two approaches. He suggests that socioemotional and task leadership are two separate roles that may be in conflict and therefore leadership will be exercised by more than one person. Supervisors on the production floor, he argues, should be task leaders and will have a difficult time incorporating socioemotional leadership qualities into their behaviour if only for the reason that there

is already likely to be a socioemotional leader within the ranks of the workers. Perrow (1972) points out that there seems to be growing support for the idea that the human relations (socioemotional) component of leadership is no guarantee of success and this view provides support for Etzioni.

Hall's (1977) discussion further deals with the lack of success past work has had in identifying traits of leadership, and the failure of the situational approach wherein it is theorized that a set of conditions at a particular time will determine the leader. Hollander and Julian (1969) have blended the trait and situation models and have added a third factor which is the interaction between leader and follower. The leader-follower is a case of reciprocal dependency. Neither can exist without the other. Fiedler (1967) has developed the "Contingency Model" which basically postulates that various situations dictate the degree of ease with which a leader can exert influence over group members. In his work he used three measures of the situation and these were leader-member relations, task structure and position power.

Of particular interest to us is the issue of task structure which refers to the extent to which task requirements are clearly specified (i.e. high formalization). Fiedler's work indicates that task oriented leaders will be most successful where task structure is high and that a low degree of formality in task or role definition will be best suited to a leader with socioemotional qualities.

In spite of the remark by Stogdill concerning the chaos that seems rampant in leadership studies, current work seems to center on the two dimensions suggested by Etzioni; task and socioemotional. Thus we suggest that for our purposes it is sufficient to conduct our research on the leadership component of process in terms of the two broad areas of technical skill or task leadership and human relations skills which we equate to the socioemotional dimension. In addition we include expertise in administrative functions although in many ways such activities are manifestations of task and socioemotional skills.

As mentioned previously, Hall (1977) argues that structure and process could exhibit variety at the micro level in an organization. Perrow (1970) in his discussion of structure and technology provides support for this view. As a result of his work, one would expect to see variations in technology result in variations in structure. And if process is in fact related to structure, then it is to be expected that processes would also change with technology. This is a very appealing model even from an intuitive point of view. That is, where differences in technology are apparent, it would not be unreasonable to surmise that the actors in an organization would attempt to utilize structures and processes with which they can be comfortable and which will tend to focus their energies and attention on accomplishing the objectives of their organization. Where technology varies across units in an organization it follows therefore that variety in structure and process would be observed

across the units.

The application of this line of reasoning seems particularly applicable to nursing units within hospitals. Even to the casual observer, it is apparent that different nursing units use different technologies. The reason for this is of course that the raw material of the nursing units, that is to say, the patients, exist in a variety of forms in terms of their disorders.

Furthermore there exists some variance in the stability of patients and the degree of certainty with which changes in status can be predicted. The requirements of treatment for the variety of disorders with which patients present has resulted in the development of relatively distinct procedures. Where procedures can be grouped so as to focus on the treatment of specific disorders or types of disorders then relatively well differentiated medical specialties have been developed. Thus variety in technology is expected across nursing units and empirical research by Overton, Schneck and Hazlett (1977) has documented the expectations. They found in a study of 7 types of nursing units in 8 hospitals in Alberta, Canada that, based on measures of technology, there were distinct groupings of nursing units. Their examination of technology resulted in three distinct factors which were uncertainty, variability and instability, all of which relate to patient disorders. Therefore, with empirical evidence of variance in technology across nursing units, one would expect to observe variance in both structure and process across these units. Furthermore, if such variance indeed exists, then it

would not be surprising to observe that structure and process are related. In essence then, one would expect to find structures that support technologies and processes supporting or emanating from the requirements of the technology.

However satisfying this view may be it is possible that the relationship are not supported by the evidence. A unit within an organization may tend to be dominated in some ways by the organization as a whole. Where several units, whose overall objectives are equivalent or at least similar, exist within an organization and where they occupy relatively similar positions of power, prestige or control, it is conceivable that all of them may be influenced or controlled by one or more power groups to the extent that expected variations among them are absent.

Nursing units may be examples of micro-organizations that exhibit less variation along some dimensions than existing theory might postulate. Therefore, they may not be characterized by the variance in structure and process that the variety of technologies would lead the observer to expect. There may be several reasons for a lack of variation and these will be explored below.

To begin, nurses who provide a large part of the delivery mechanism for medical care, undergo, during their training, a socialization process that stresses the importance of the care and cure of patients. Patients exist, of course, on all units and this stress would seem to automatically relegate the importance of any particular unit to a somewhat lesser position. Furthermore, nursing students are exposed to training on a variety of nursing

units. It is possible therefore that they bring certain attitudes to a unit, have them modified to a certain extent while there, and then take those new attitudes along with increased knowledge to the next unit. This process continues year after year in hospitals that provide training and it is worth considering that this cross-fertilization tends to result in a basic constancy in the attitudes, assumptions and behaviour of nurses with respect to the way a nursing unit "ought" to be structured and the processes that "ought" to be used. Mobility of nursing staff also seems to be an objective of the training process. In some cases, nurses will prefer to work on a variety of units. In other situations the workload within the hospital itself will require that some staff move from unit to unit. This factor in itself may tend to force conformity so that the number of unknowns is reduced for new staff members. Therefore, if these arguments have validity, it could well be that variance in structure and process will tend to be constrained.

Another characteristic of the medical care system that deserves consideration is the power position occupied by the physicians. Treatment is to a large extent a contract between physician and patient and by virtue of their extended education, convention and statute, the physician is responsible for directing the treatment and has the final decision on procedures. Clearly then the staff on nursing units are subordinate to physicians. The nurses are charged with implementing the care and cure prescribed by the physician and only rarely, if ever, would they

be in a position to countermand physicians' directives. This hierarchical arrangement between physician and nurse is bound to exist across different units firstly because physicians will direct treatments on more than one unit and also because as a social group they are set apart from nursing staff.

In terms of time and energy it is also more productive for physicians to communicate their orders to a limited number of staff on each unit. In some cases these orders must then be passed to those who will implement the necessary procedures. This in itself establishes a hierarchy within the nursing staff and limits the discretion that individual nurses may assume. This arrangement could in fact result in relatively specific guidelines within which each nurse must function irrespective of the nursing unit.

The question of expertise and experience could also tend to result in a commonality of structure across units. Treatment of patients very often requires that very serious decisions be taken. The procedures carried out as a result of these decisions can and do affect both the quantity and quality of patient life and therefore one could expect to find that the implementation of many of the procedures must be overseen by nursing staff with more experience and expertise. This tends to force hierarchy and limit discretion within units and because similar circumstances can exist in different units, variance in structure across units may also be limited.

Another element which may result in insignificant variance in structure and process across units in an organization is administrative policy and philosophy. Within a hospital, the administrative arm deals with all units and in the interests of removing uncertainty it is likely that they will standardize each unit to remove unique aspects. The administration is also likely to be under pressure from external sources (for example, nursing organizations) to standardize policies due perhaps only to the uneasiness that arises when similar groups are accorded what appears to be, and in fact may be, special privileges or status.

Administrative policies may also be implemented across the entire organization as a result of ignorance of the subtleties of the varying technology used in each unit. This factor may play a more important role if the proportion of staff with medical training within the administration is small. It could well be of course that the variety of structure and process that would be necessary for congruence with the variety of technology is simply too difficult to establish. Hence overall standardization may be the result since that at least introduces some certainty and predictability.

In summary then there appear to be two possibilities. The first is that structure and process will vary across nursing units. The second possibility is that pressures of ideology, the socialization introduced in training, the power and status of the physicians and the pervasiveness of the administration will result

in a decrease or absence of variance in structure and process. These two contending positions will, of course, both exert pressures on the organization and the result may be a mixture of variety and commonality of structure and process depending upon the dimensions of these two concepts that are under scrutiny.



CHAPTER II

METHODOLOGY

Statement of Problem

The purposes of this investigation were to determine if there were any differences in structure and process across a selection of 9 types of nursing units in 24 different hospitals and secondly to determine if there were any significant relationships between structure and process across the units.

Unit of Analysis

The unit of analysis for this investigation was the nursing sub-unit which was chosen to determine if, within the general framework of a hospital, there might be variation in structure and process at the working level. A nursing unit was defined as a geographic in-patient area of a hospital having an assigned number of beds, its own regular complement of nursing staff with shared goals, a formal hierarchical structure and arrangements for nursing tasks; that is, it could be considered a bounded administrative and social unit (Overton, Schneck, Hazlett, 1977). It was expected that the staff complement of the nursing sub-units would consist of a mix of nursing skills and professional designations including head nurses, assistant head nurses, team leaders, registered nurses, registered psychiatric nurses, certified nursing aides, nursing orderlies and nursing assistants.

Types of Nursing Units

The selection of nursing units was based on two main criteria. First, units were selected where technology was assumed to be relatively distinct. Second, the specialties had to be large enough so as to permit adequate sample sizes. The units chosen were:

- 1) paediatric units (PAEDS): treating children under the age of sixteen years with general medical - surgical disorders;
- 2) obstetrical units (OBS): treating both anti- and post-partum patients but not including delivery room and nurseries;
- 3) rehabilitation units (REHAB): treating adult patients with primarily physical disabilities requiring an active rehabilitation program;
- 4) intensive care units (ICU): treating patients with a variety of diagnoses admitted for "general" intensive care, and/or treating patients with one specific disorder requiring "specialized" care;
- 5) auxiliary units (AUX): treating patients requiring long term care, including the chronically disabled and the aged;
- 6) psychiatric units (PSYCH): treating adult patients requiring active psychiatric treatment;
- 7) surgical units (SURG): treating adult patients for general surgical procedures, but not for specialized surgery such as cardiac surgery, neurosurgery, orthopaedic, or ear, nose, throat and eye surgery;
- 8) medical units (MED): treating adult patients for general medical disorders;
- 9) rural units (RURAL): treating patients with a general range of common disorders not requiring specialized equipment, the unit is located in a relatively small hospital in a rural setting.

Selection of Hospitals

Hospitals were selected from a list of all hospitals in the

province of Alberta using a number of criteria. Initially, 35 hospitals were selected on the basis of size. Twelve hospitals were selected with 100 beds or less; 13 hospitals with 101 to 400 beds; and 10 hospitals with more than 400 beds. Consideration was also given to the location of the hospitals in relation to the travel time available to the researchers and the number of sub-units of each type within each hospital.

Verbal and written explanations of the research were given to senior administrative staff of the hospitals. Twenty-nine hospitals agreed to participate in the project however that number was reduced to 24 as a result of the possibility of strike action by nursing personnel. The final selection yielded 10 hospitals with 100 or fewer beds, 12 with 101 to 400 beds and 2 with 401 or more beds.

Theoretical and Operational Definitions

The concepts of structure and process are defined according to the material presented below. The definitions are taken from a research document by Overton and Schneck (1976). Theoretical and operational definitions are given for variables that comprise each concept and are shown in Table 1. Table 2 shows the items relating to each variable.

Sources of Measurement of Variables

The nursing administrator in each hospital ($n = 24$) provided general information about the hospital and the nursing sub-units. This included hospital size (beds and total nursing staff); type of

hospital (teaching, non-teaching, specialty); sub-unit size (beds and nursing staff) and sub-unit type. Within the concept of structure nursing administrators provided information on vertical complexity, rule formalization and role formalization for each sub-unit. The responses from the nursing administrators yielded data for 157 nursing sub-units. The nursing administrator questionnaire is presented in Appendix C.

The headnurse (or equivalent) on each sub-unit (n=157) was asked to complete a questionnaire to provide information about sub-unit environment, structure, process, cohesion, job satisfaction, stress and technical equipment. Within the concept of structure, they provided data to evaluate the variables of horizontal complexity and formalization of evaluation. The headnurses also provided responses to questions dealing with coordination and control, both of which are classified in this research as process variables. The headnurse questionnaire is to be found in Appendix B.

Individual members of the nursing staff (n = 1265) working in the 157 sub-units responded to questions concerned with technology, structure, process, cohesion, job satisfaction and stress. They provided information for the evaluation of the structural variables of role specificity and decentralization of decision-making relative to both physicians and headnurses. The nursing staff questionnaire is shown in Appendix A.

All respondents were asked to provide demographic data including age, sex, education and work experience in their specialty,

Pretesting

The survey documents were pretested by at least 20 nursing administrators, headnurses and sub-unit staff. As a result of the pretesting, some modifications were made to the wording and format of some of the questions.

Selection of Nurses Within the Sub-unit

Since nursing sub-units were the units of analysis in this research, a representative sample of individual nurses from each sub-unit was required. As a consequence of limited resources it was not possible to include all nurses from all sub-units.

Data collection was scheduled for a given day or days in each hospital at the convenience of the hospital staff. All the nurses on duty in each sub-unit included in the study were asked to complete the questionnaire. It was assumed that the staffing pattern at the time of data collection was representative of staffing patterns on other days. The number of responses from each sub-unit ranged from 1 to 23 with an average of 8.05. The types of nursing staff included were equivalent to the proportion of professional to other categories of nursing staff (nursing aides, orderlies and attendants). An attempt was made to obtain at least 50% of the registered nurses and 50% of the other category of nursing staff allocated to each sub-unit on a permanent basis.

Data Collection Procedure

The data was collected over a period of six weeks in May and June of 1977 by research assistants. Each nursing administrator

was interviewed to obtain general information regarding the sub-units selected for inclusion in the study. The sub-units were coded according to type and number and information regarding the number of beds, staffing and leadership positions was obtained. The nursing administrator then completed a questionnaire regarding her biographical data and the presence or absence of certain documents on each selected sub-unit.

For the sub-units within each hospital, explanation sessions lasting 45 to 60 minutes were conducted. These sessions included a 5 to 7 minute presentation describing the study and the 5 categorical concepts under investigation (technology, environment, structure, process and outcomes). Modifications were made to the verbal presentation in an effort to make it more meaningful for particular nursing staff. Following the presentation, headnurses and nursing staff each completed appropriate questionnaires. Clarification of items was given when requested by respondents. Twenty to thirty minutes were required to complete each questionnaire.

Data Analysis

For the purposes of this thesis, the items seeking to measure structure and process were subjected to a variety of multi-variate techniques.

Data from the nursing staff was aggregated on the basis of type of unit. The responses from headnurses and nursing administrators was then appended to provide a data base of 157 unique cases over the 9 types of units. Missing data reduced the number of cases

depending on the item under analysis.

Factor analysis was used to reduce or combine the items measuring particular aspects of structure and process. The first step in the use of the factor analysis procedure was to perform the analysis with no restriction on the number of factors produced. This was then normally followed by running the procedure using a minimum eigenvalue of 1.0 criteria. The factors thus produced were then examined to determine how well they explained the concept under consideration. In some cases, after analysis of the results of the first two steps, the procedure was re-run specifying a given number of factors when it appeared that this approach would provide a solution that was more easily interpreted or that was more in keeping with the theoretical aspects of the work. An orthogonal analysis was used throughout in order to provide independent factors. The approach did not compromise the interpretation of the results. Analysis of variance techniques were also used on factor scores (and item scores where appropriate) to examine differences between the 9 types of nursing units. In the case of the dichotomous variables, contingency tables were used to examine differences.

The statistical calculations were done using the resources of Computing Services, University of Alberta, Edmonton. The Statistical Package for the Social Sciences (SPSS), Version H, Release 7.2 and a package developed by the Division of Educational Research Services, University of Alberta, Edmonton and more commonly known as DERS was used for the vast majority of data manipulation and calculation.

The F test was used extensively throughout the analysis to determine if significant differences between the means of the structure and process variables existed across the 9 types of nursing units. The Kolmogorov-Smirnov Goodness of Fit test was used to examine the item and factor scores to determine if they were characterized by normality of distribution. Only one of the item scores (item 59, Nursing Staff Questionnaire, Appendix A) exhibits normality of variance. All of the factor scores with the exception of "task leadership" (items 42 to 46, Nursing Staff Questionnaire, Appendix A), "informal task control" (items 63 to 66, Nursing Staff Questionnaire, Appendix A) and "formal task control", (items 61 and 62, Nursing Staff Questionnaire, Appendix A) are normally distributed. Equality of variance was tested using the Bartlett-Box F test produced by the SPSS analysis of variance procedure. All of the structural items and factors except items 1 and 3 (Headnurse Questionnaire, Appendix B) which relate to measures of horizontal complexity, exhibit homogeneity of variance. Most of the process items and factors are characterized by homogeneity of variance. The exceptions are item 85, Headnurse Questionnaire (Appendix B), item 57, Nursing Staff Questionnaire (Appendix A), and items 7, 8, 10 and 11, Headnurse Questionnaire (Appendix B).

The analysis of variance procedures should strictly be applied only to data that exhibits normality of distribution and homogeneity of variance. However, Keeping (1962) states that the F test is "fairly robust and can be used without serious error even for

considerable variation from normality. Care should be used in claiming significance when the probability is near the border-line since, on the whole, non-normality tends to make the results look more significant than they are." With respect to inequality of variance Keeping notes that "the result is to increase the true probabilities for Type I errors, in the usual F test for equality of means, beyond the nominal value of alpha." These cautions have been kept in mind when interpreting the results of the statistical calculations.

The Student-Newman-Keuls procedure was also used in an effort to further elaborate significant differences noted by the F test. This procedure has the advantage that it holds the experimentwise error rate to alpha for each stage of the testing procedure.

The exact impact of the deviations from the assumptions of the statistical techniques is beyond the resources of the present investigator. One possible improvement would be to subject the data to logarithmic or trigonometric transformations in an effort to more closely approximate normal distributions and to increase the stability of the variances.

TABLE 1

DEFINITION OF VARIABLES

STRUCTURE

1. Degree of Formalization of Role Specificity

Theoretical: the degree to which job descriptions are specified and the extent to which rules define what the occupants of positions are to do.

Operational: the degree to which nursing behaviour is controlled by rules, including deciding nursing care, keeping records, personal breaks, number of rules, precision definitions of duties and clear lines of reporting and authority.

2. Degree of Centralization of Decision Making

Theoretical: the degree to which power is concentrated in a social system including the degree of participation in policy and work decisions.

Operational: the degree to which nurses in the subunit have authority to make decisions in relation to patient care.

3. Degree of Horizontal Complexity

Theoretical: number of different occupational roles or degree of specialization.

Operational: the extent of division of labour, span of control, degree of professionalization, specialized training and experience, and the size of the administrative component.

4. Degree of Vertical Complexity

Theoretical: number of authority levels.

Operational: number of hierarchical levels within the nursing subunit.

5. Degree of Formalization of Evaluation

Theoretical: the extent to which the evaluation procedure is written, frequent, complete and communicated to each number of the subunit.

Operational: the degree to which headnurses use written evaluation forms, frequency, areas of nursing performance included and frequency of performance evaluation interviews.

6. Degree of Formalization of Role Definitions

Theoretical: the extent to which rules, procedures, instructions and communications are written.

Operational: the degree to which written documents are available to nurses including contract of employment, hospital information booklet, organization chart, position descriptions, procedure and policy manuals, shift instructions and report.

PROCESS

1. Leadership

Theoretical: leadership is viewed as a characteristic of the person occupying the headnurse's role and as a category, type or style of behaviour.

Operational: the extent of the headnurses' human relations skills; the extent to the headnurses' technical and administrative skills.

2. Control

Theoretical: control is defined in terms of the power of external persons or groups to legitimately check on, and thereby influence, the work behaviour of nurses.

Operational: how errors and accidents are reported; frequency of recording patients' records; existence of nursing audit; percentage of work checked by various groups; extent of following rules and procedures.

3. Mechanisms of Communication

Theoretical: the degree to which information is transmitted among the members of a social system.

Operational: evaluation of communications with physicians and headnurse; amount of communication with colleagues; amount and type of communication with the headnurse.

4. Mechanisms of Coordination

Theoretical: the degree to which each of the various interdependent parts of a social system operates according to the requirements of the other parts of the total system. Three types of coordination are identified in terms of workflow interdependence:

- (1) pooled interdependence, i.e. by standardization and impersonal
- (2) sequential interdependence i.e. by planning and impersonal
- (3) reciprocal interdependence i.e. by feedback or mutual adjustment and personal.

Operational: the extent to which routine nursing procedures, standardized nursing care plans and standing orders are used and the degree to which functional nursing assignment is used and the degree to which team nursing and/or primary nursing assignment is used.

TABLE 2

CONCEPTS, VARIABLES AND ITEMS

<u>CONCEPT</u>	<u>VARIABLE</u>	<u>ITEM</u>	<u>QUESTIONNAIRE*</u>
STRUCTURE	Role Specificity	22,23,26,28 30 to 32	Nursing Staff
	Decision Making	24,25,27,29 33 to 37	Nursing Staff
	Horizontal Complexity	1,2,3	Headnurse
	Vertical Complexity	10	Nursing Administrator (Staffing)
	Evaluation	75 to 79	Headnurse
	Role Definition	10 to 31	Nursing Adminsitration
PROCESS	Leadership	38 to 46	Nursing Staff
	Control	61 to 66 80 to 85	Nursing Staff Headnurse
	Communication	57 to 60	Nursing Staff
	Coordination	4 to 11	Headnurse

*The questionnaires are presented as follows:

Nursing Staff	- Appendix A
Headnurse	- Appendix B
Nursing Administrator	- Appendix C

CHAPTER III

PRESENTATION AND ANALYSIS OF DATA

This chapter presents the analysis of the data from the questionnaire in terms of the factor analysis procedures and the analysis of variance tests used to determine where differences exist between nursing sub-units. The presentation is made for the two categorical concepts beginning with structure.

STRUCTURE

Role Specificity

Role specificity which relates to the extent to which there is definition of the roles of positions is analyzed using factor analysis. The factor scores are then used in an analysis of variance procedures to determine if there is variety across the 9 types of nursing units.

Factor Analysis

A three factor orthogonal analysis of items 22, 23, 26, 28 and 30 to 32 from the Nursing Staff Questionnaire using varimax rotation provided the solution shown in Table 3. Seven items were reduced to three factors which account for 73% of the variance in unit responses.

Each of the factors is described below with an analysis and listing of those items with a loading of 0.50 or greater.

TABLE 3

ROLE SPECIFICITY

Factor Analysis - Orthogonal Solution Varimax Rotation

Item	Content	Commun- alities	Factor Loadings		
			I	II	III
30.	Reporting and authority	0.678	0.736	0.193	0.316
31.	Precise definitions	0.732	0.815	0.240	-0.099
32.	Responsibility and authority emphasized	0.802	0.870	0.063	0.203
23.	Freedom	0.734	0.272	0.635	0.507
26.	Own ideas	0.755	0.035	0.868	0.021
28.	Procedures for each situation	0.539	0.355	0.614	-0.189
22.	Leave unit	0.839	0.120	-0.062	0.906

Factor 1. The items loading highly on this factor relate to the extent to which clear lines of reporting and authority exist (item 30), the extent to which precise definitions of nurses' duties exist (item 31) and the degree to which responsibilities and authority are emphasized (item 32). This factor was labelled "bureaucratic structure". Those items with loadings of 0.50 or greater are as shown below.

Nursing staff were requested to respond to these items in terms of whether they strongly agreed, agreed, disagreed or strongly disagreed (refer to Appendix A). Strong agreement received the highest score.

Item

- 30. On this unit, there are clear lines of reporting and authority.
- 31. There are very precise definitions of nurses' duties on this unit.
- 32. Responsibilities and authority are emphasized on this unit.

Factor II. The aspects of role specificity relating to this factor were the extent to which nurses have a great deal of freedom and few rules to follow (item 23), the extent to which nurses follow their own ideas in implementing nursing care (item 26) and the extent to which established procedures exist (item 28). This factor was labelled "role restriction". Items with loadings of 0.50 or greater are shown below.

Nursing staff were requested to respond to these items in terms of whether they strongly agreed, agreed, disagreed or

strongly disagreed (refer to Appendix A). High scores for item 23 and 26 correspond to strong disagreement. A high score for item 28 indicates strong agreement.

Item

- 23. On this unit, nurses have a great deal of freedom and few rules and procedures to follow.
- 26. Most nurses on your unit follow their own ideas in implementing nursing care.
- 28. No matter what situation arises on this unit, we have procedures to follow in dealing with it.

Factor III. This factor is comprised of one item that determines whether nurses are free to leave their unit without informing other nurses (item 22). This factor was labelled "spatial constraint". The item with a loading of at least 0.50 is shown below.

Nurses were asked to respond to this item in terms of whether they strongly agreed, agreed, disagreed or strongly disagreed (refer to Appendix A). A high score corresponds to strong disagreement.

Item

- 22. Nurses are allowed to leave the nursing unit without informing other nurses they are leaving.

Sub-Unit Differences

Table 4 shows the results of analysis of variance procedures to examine differences between the 9 types of nursing units in relation

TABLE 4
 Role Specificity
 Analysis of Variance on Factor Scores

Factor	Source	Sum Squares	Mean Square	DF	F	P
I. Bureaucratic Structure	Groups Error	15.85 139.00	1.98 0.95	8 147	2.10	0.04*
II. Role Restriction	Groups Error	16.41 138.46	2.05 0.94	8 147	2.18	0.03*
III. Spatial Constraint	Groups Error	36.61 117.98	4.58 0.80	8 147	5.70	0.00*

*Indicates significance at the 0.05 level.

to the means of the three factors, bureaucratic structure, role restriction and spatial constraint. Using the F test at the 0.05 level of significance it is apparent that there are statistically significant differences in the means for all three factors across the units.

The Newman-Keuls procedure for comparisons between ordered means was performed for the three factors and the results are found in Table 5. A level of significance of 0.05 was used in interpreting the results and units are accordingly considered to be equivalent where the differences in the mean factor scores are not significant.

With respect to the bureaucratic structure factor, the auxiliary units were ordered highest and intensive care units lowest. However, the only significant differences are represented by the extremes of the ordering. The auxiliary and obstetric units are shown to be significantly different from intensive care units. Otherwise all units are considered to be equivalent and there is considerable overlap.

For the role restriction factor, significant differences occur only between rehabilitation, obstetric and psychiatric units. Rehabilitation units followed by obstetric units are highest in role restriction. The rural, auxiliary, surgical, medical, paediatric and intensive care units follow in order and psychiatric units are lowest in role restriction.

The third factor, spatial constraint, shows intensive care followed by paediatric units being highest. These are both higher

TABLE 5

Role Specificity

Newman-Keuls Comparison Between Ordered Means

Factor I. Bureaucratic Structure

	AUX	OBS	REHAB	MED	RURAL	SURG	PAEDS	PSYCH	ICU
Means	0.410	0.363	0.166	0.158	0.156	0.040	-0.070	-0.530	-0.716
ICU	1.125*	1.078*	0.882	0.874	0.872	0.756	0.646	0.186	0.000
PSYCH	0.940	0.893	0.696	0.688	0.686	0.570	0.461	0.000	
PAEDS	0.479	0.432	0.235	0.228	0.226	0.110	0.000		
SURG	0.369	0.322	0.125	0.118	0.116	0.000			
RURAL	0.254	0.207	0.010	0.002	0.000				
MED	0.251	0.204	0.008	0.000					
REHAB	0.244	0.197	0.000						
OBS	0.363	0.047	0.000						
AUX	0.410	0.000							
R =	9	8	7	6	5	4	3	2	

 $Q_{.95(r,147)} \times M = 1.09$
 $M(\text{multiplier}) = 0.25026$

* indicates significance at the 0.05 level

TABLE 5

Role Specificity

Newman-Keuls Comparison Between Ordered Means

Factor II. Role Restriction

	REHAB	OBS	RURAL	AUX	SURG	MED	PAEDS	ICU	PSYCH
Means	0.585	0.411	0.180	0.044	0.005	-0.084	-0.088	0.103	-0.748
PSYCH	1.334*	1.159*	0.928	0.792	0.753	0.664	0.661	0.645	0.000
ICU	0.689	0.514	0.283	0.147	0.108	0.019	0.016	0.000	
PAEDS	0.673	0.498	0.267	0.132	0.092	0.003	0.000		
MED	0.670	0.495	0.264	0.128	0.089	0.000			
SURG	0.580	0.406	0.175	0.039	0.000				
AUX	0.541	0.367	0.136	0.000					
RURAL	0.405	0.231	0.000						
OBS	0.175	0.000							
REHAB	0.000								
R	9	8	7	6	5	4	3	2	
$Q_{.95(r,147)} \times M =$	1.10	1.07	1.04	1.01	0.96	0.91	0.83	0.69	

M(multiplier) = 0.24978

* indicates significance at the 0.05 level

TABLE 5

Role Specificity

Newman-Keuls Comparison Between Ordered Means

Factor III. Spatial Constraint

	ICU	PAEDS	SURG	RURAL	MED	REHAB	PSYCH	OBS	AUX
Means	0.089	0.414	0.292	0.046	0.009	-0.211	-0.393	-0.616	-1.165
AUX	1.974*	1.579*	1.457*	1.211*	1.174*	0.954*	0.772*	0.549	0.000
OBS	1.425*	1.030*	0.908*	0.662	0.625	0.405	0.223	0.000	
PSYCH	1.202*	0.807	0.685	0.439	0.402	0.182	0.000		
REHAB	1.021	0.625	0.503	0.257	0.221	0.000			
MED	0.800	0.405	0.283	0.037	0.000				
RURAL	0.763	0.368	0.246	0.000					
SURG	0.517	0.122	0.000						
PAEDS	0.414	0.000							
ICU	0.089	0.000							
R =	9	8	7	6	5	4	3	2	
$q_{.95(r,147)} \times M =$	1.01	0.99	0.96	0.93	0.89	0.87	0.76	0.64	
M(multiplier) =	0.23056								

* indicates significance at the 0.05 level

than surgical and rural units which in turn score higher than medical, rehabilitation and psychiatric units. Obstetric and auxiliary units in that order comprise the low end of the scale of spatial constraint. Although some significant differences do appear, for example between auxiliary and psychiatric units, there is considerable overlap which can best be grasped by the graphics of Figure 1.

As Figure 1 demonstrates, the ordering of the units is different for each factor. A particular unit may order highly on one factor and be relatively low on another. It is seen, for example, that while intensive care units are lowest in bureaucratic structure and occupy the lowest but one position in role restriction, they are ordered most highly on spatial constraint.

In general, considering the overlap of subsets of nursing units, differences between them are sparse and only a few differences appear. In the case of bureaucratic structure, auxiliary and obstetric units are different from intensive care units. The lower bureaucratic structure in intensive care units may be due to higher task orientation and the requirement for a relatively higher proportion of staff at the professional level to deal with emergencies and physiological crises.

In terms of role restriction psychiatric units are seen to be different relative to obstetric and rehabilitation units. The latter are more likely to employ a larger proportion of non-professional staff than would be found on psychiatric units. This would result in more constraint on staff in terms of

Figure 1. Role Specificity
Ordered Nursing Sub-units

Factor I. Bureaucratic Structure

High AUX OBS REHAB MED RURAL SURG PAEDS PSYCH ICU Low

Factor II. Role Restriction

High REHAB OBS RURAL AUX SURG MED PAEDS ICU PSYCH Low

Factor III. Spatial Constraint

High ICU PAEDS SURG RURAL MED REHAB PSYCH OBS AUX Low

Note: The underlines indicate groups for which there is no significant difference between mean factor scores.

implementing their own nursing care ideas. Furthermore, the care on both obstetric and rehabilitation units is likely to be recuperative and fairly routine in nature. This allows a more precise definition of alternatives for treatment. In psychiatric units, however, the process of cure is less well defined which would probably result in nursing staff having more discretion.

Spatial constraint is characterized by several overlapping subsets. The only difference which can be discussed from a practical viewpoint is that between intensive care and auxiliary units. There is more need in intensive care units for the whereabouts of staff to be known since emergency situations will require prompt attention. In addition, specialization is likely to be concentrated in specific individuals to a greater extent than in auxiliary units where nursing care interventions could proceed without the presence of the entire "team".

Decentralization of Decision Making

Decentralization of decision making relates to the degree to which the nursing staff have authority to make decisions about patient care. The item scores are factor analyzed and the factor scores are then subjected to analysis of variance to determine if variety exists across the 9 types of nursing units.

Factor Analysis

A three factor orthogonal analysis of items 24, 25, 27, 29 and 33 - 37 from the Nursing Staff questionnaire using varimax rotation

produced the solution shown in Table 6. Nine items were reduced to three factors which account for 76% of the variance in unit response.

Each of the factors is described below with an analysis and listing of those items having a loading of 0.50 or greater.

Factor I. The items loading highly on this factor relate to the extent to which action depends upon approval by the Headnurse (item 35), whether or not even small matters about patients have to be referred to the Headnurse for a decision (item 36) and whether or not nurses have to ask the Headnurse before doing almost anything (item 37). This factor was labelled "decentralization relative to headnurse". Those items with loadings of 0.50 or greater are shown below.

Nursing staff were requested to respond to these items in terms of whether they strongly agreed, agreed, disagreed or strongly disagreed (refer to Appendix A). High scores on these items correspond to strong disagreement.

Item

35. There can be little action taken on this unit until the Headnurse approves the decision.
36. Even small matters about patients have to be referred to the Headnurse for a final decision.
37. Nurses have to ask the Headnurse before doing almost anything.

Factor II. The aspects of decentralization of decision making relating to this factor were the extent to which nursing staff are

TABLE 6

Decentralization of Decision Making

Factor Analysis - Orthogonal Solution Varimax Rotation

Item	Content	Commun- alities	Factor Loadings		
			I	II	III
35.	Headnurse decision	0.850	0.865	0.309	-0.081
36.	Refer small matters	0.860	0.871	0.164	-0.272
37.	Ask Headnurse	0.835	0.826	0.258	-0.293
29.	Nurses discouraged	0.624	-0.377	-0.657	0.223
33.	Care participation	0.804	0.251	0.844	-0.166
34.	Technique participation	0.724	0.133	0.813	-0.212
24.	Refer small matters	0.711	-0.081	-0.112	0.831
25.	Freedom from M.D.'s	0.671	-0.327	-0.196	0.725
27.	Physician's order	0.747	-0.222	-0.307	0.777

discouraged from making their own decisions concerning nursing care (item 29), the extent to which nurses participate in deciding upon nursing care (item 33) and the extent to which nurses participate in decisions to change or adopt new nursing techniques (item 34). This factor was labelled "decentralization of nursing care". These items with loadings of 0.50 or greater are shown below.

Nurses were requested to respond to these items in terms of whether they strongly agreed, agreed, disagreed or strongly disagreed (refer to Appendix A). High scores for the items correspond to strong agreement. In the case of item 29 a high negative factor score is indicative of increased decentralization.

Item

- 33. Nurses frequently participate in decisions regarding what nursing care will be given to individual patients on this unit.
- 34. Nurses frequently participate in decisions to change or adopt new nursing techniques on this unit.
- 29. If nursing staff want to make their own decisions about nursing care they are quickly discouraged here.

Factor III. This factor is comprised of items that relate to whether even small matters had to be referred to a physician for a final decision (item 24), the extent to which nurses were free to decide nursing interventions for patients without asking physicians (item 25) and the extent to which action depends upon a physician writing an order (item 27). This factor was labelled "centralization relative to physicians". Those items with loadings of 0.50 or greater are shown below.

Nursing staff were requested to respond to these items in terms of whether they strongly agreed, agreed, disagreed or strongly disagreed (refer to Appendix A). High scores for items 24 and 27 correspond to strong agreement. A high score for item 25 indicates strong disagreement.

Item

24. Even small matters about a patient have to be referred to a physician for a final decision.
25. Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking physicians.
27. There can be little nursing action taken on this unit until a physician writes an order.

Sub-unit Differences

Table 7 shows the results of analysis of variance procedures to examine differences between the 9 types of nursing units in relation to the means of the three factors, centralization relative to headnurses, decentralization of nursing care and centralization relative to physicians. Using the F test at the 0.05 level of significance, it is apparent that there are statistically significant differences in means for two factors across the units. The probability level for decentralization of nursing care is so close to the chosen alpha that the factor is considered to have no significant differences.

The Newman-Keuls procedure for comparisons between ordered means was performed for the factors where differences were indicated by the F test and the results are presented in Table 8. A level of significance of 0.05 was used in interpreting the

TABLE 7
Decentralization of Decision-Making
Analysis of Variance on Factor Scores

Factor	Source	Sum Squares	Mean Squares	DF	F	P
I. Decentralization Relative to Headnurses	Groups Error	31.98 122.83	4.00 0.84	8.00 147.00	4.78	0.00*
II. Decentralization Nursing Care	Groups Error	15.12 1397.69	1.89 0.95	8.00 147.00	1.99	0.05**
III. Centralization Relative to Physicians	Groups Error	19.24 135.51	2.41 0.92	8.00 147.00	2.61	0.00*

* Indicates significant at the 0.05 level

** The computed value for P was 0.0517. Even though that is very close to the chosen level of alpha of 0.05, there are not sufficient grounds to reject the null hypothesis of equality of means.

TABLE 8

Decentralization of Decision-Making
Newman-Keuls Comparisons Between Ordered Means

Factor I. Decentralization Relative to Headnurses

	ICU	PSYCH	MED	RURAL	SURG	PAEDS	OBS	REHAB	AUX
Means	0.755	0.484	0.311	0.197	0.021	-0.161	-0.439	-0.666	-0.932
AUX	1.687*	1.416*	1.243*	1.129*	0.953*	0.771	0.493	0.266	0.000
REHAB	1.421*	1.150*	0.977	0.863	0.687	0.505	0.227	0.000	
OBS	1.194*	0.923	0.750	0.635	0.460	0.278	0.000		
PAEDS	0.916	0.645	0.472	0.357	0.182	0.000			
SURG	0.734	0.463	0.290	0.175	0.000				
RURAL	0.559	0.287	0.114	0.000					
MED	0.311	0.173	0.000						
PSYCH	0.484	0.000							
ICU	0.755								
R	= 9	8	7	6	5	4	3	2	
$Q_{.95}(r, 147)_{\alpha M}$	= 1.03	1.01	0.98	0.95	0.91	0.85	0.78	0.65	

M(multiplier) = 0.25525

* indicates significance at 0.05 level

TABLE 8
Decentralization of Decision-Making
Newman-Keuls Comparisons Between Ordered Means
Factor II. Decentralization Of Nursing Care

	PSYCH	MED	RURAL	REHAB	SURG	PAEDS	ICU	AUX	OBS
Means	0.531	0.294	0.164	0.122	-0.085	-0.127	-0.151	-0.193	-0.703
OBS	-0.703	1.233*	0.997	0.866	0.825	0.617	0.576	0.551	0.510
AUX	-0.193	0.724	0.487	0.357	0.315	0.108	0.066	0.042	0.000
ICU	-0.151	0.682	0.445	0.315	0.274	0.066	0.024	0.000	
PAEDS	-0.127	0.658	0.421	0.291	0.249	0.042	0.000		
SURG	-0.085	0.616	0.379	0.249	0.208	0.000			
REHAB	0.122	0.408	0.172	0.041	0.000				
RURAL	0.164	0.367	0.130	0.000					
MED	0.294	0.237	0.000						
PSYCH	0.531	0.000							
R	9	8	7	6	5	4	3	2	
$q_{.95}(r,147)_{\alpha M}$	1.10	1.08	1.05	1.01	0.97	0.91	0.83	0.69	

M(multiplier) = 0.25095

* indicates significance at the 0.05 level

Figure 2. Decentralization of Decision-Making
Ordered Nursing Sub-units

Factor I. Decentralization Relative to
Headnurses

High ICU PSYCH MED RURAL SURG PAEDS OBS REHAB AUX Low

Factor II. Decentralization of Nursing
Care

High PSYCH MED RURAL REHAB SURG PAEDS ICU AUX OBS Low

Factor III. Centralization Relative to
Physicians*

High PAEDS RURAL MED REHAB OBS AUX SURG ICU PSYCH Low

Note: The underlines indicate groups for which there is no significant difference between mean factor scores.

* The F test indicates that there are significant differences but the Newman-Keuls procedure does not detect any.

results and units are accordingly considered to be equivalent where the differences in mean factor scores are not significant.

With respect to decentralization relative to headnurses, the only significant differences are between intensive care units and obstetric, rehabilitation and auxiliary units. The high score in intensive care units is possibly due to their having a greater proportion of professional staff. Headnurses would not tend to decentralize decision-making where more non-professional staff are employed as is the case with obstetric, rehabilitation and auxiliary units.

There are no significant difference across the units with respect to decentralization of nursing care according to the F test. The calculated probability (0.0517) is marginal and accordingly the units are judged not to vary significantly.

Although the F test indicates that there are significant differences across the units with respect to centralization relative to physicians, the Newman-Keuls procedure does not present any and accordingly the units are considered to be equivalent in this regard. This may be due to the responsibility physicians have which manifests itself as a similar degree of authority irrespective of unit.

In general, significant differences between units with respect to decision-making are sparse or non-existent.

Horizontal Complexity

Horizontal complexity is examined in terms of the variety of the types of nursing staff positions and the number of administrative positions. Analysis of variance is then used to

examine differences across the 9 types of nursing units.

Sub-unit Differences

Analysis of variance procedures were used to examine the differences between the 9 types of nursing units in relation to the mean scores of the items seeking to measure horizontal complexity. Table 9 shows the results of this analysis. The items comprising horizontal complexity are shown below and are from the Headnurse questionnaire (refer to Appendix B).

Complexity of Nursing Staff

Item

1. Which of the following categories of nursing positions are usually employed on your unit? (Check more than one if necessary)

☐ General duty nurse/staff nurse	☐ Ward Aide
☐ Psychiatric Nurse	☐ Volunteer
☐ Certified Nursing Aide	☐ Other,
☐ Nursing Orderly	☐ specify

The complexity of nursing staff was measured by coding the number of categories that were checked by the respondent.

Complexity of Administration

Item

3. Which of the following categories of administrative/clerical assistants are employed for your unit? (Check more than one if necessary).

TABLE 9
Horizontal Complexity

Item	Source	Sum Squares	Mean Squares	DF	F	P
1. Complexity of Nursing Staff	Groups Error	30.04 185.74	3.76 1.36	8.00 137.00	2.77	0.01*
3. Complexity of Administration	Groups Error	38.25 230.28	4.78 1.68	8.00 137.00	2.84	0.01*

* Indicates significance at the 0.05 level.

☐ Unit Manager	☐ Unit Secretary/Clerk
☐ (responsible to Nursing)	☐ Night Shift
☐ Unit Manager	☒ Unit Secretary/Clerk
☐ (responsible to Administration)	☐ Weekends
☐ Unit Secretary/Clerk	☐ Supply Technicians
☐ Day Shift	☐ Pharmacy Aides
☐ Unit Secretary/Clerk	☐ Other, specify _____
☐ Evening Shift	

Complexity of administration was measured by coding the number of categories checked by the respondent.

The Newman-Keuls procedure for comparisons between ordered means was used to examine differences between units and the results are displayed in Table 10. A level of significance of 0.05 was used in interpreting the results and units are accordingly considered to be equivalent where the differences in mean items scores are not significant. The ordering of the units on the scales is shown in Figure 3.

In terms of complexity of nursing staff, the only significant difference is between rehabilitation and intensive care units. Rehabilitation units report the greatest variety of types of nursing care positions and this is consistent with the expectation that, in addition to more conventional nursing staff, such units would employ specialties such as physical and occupational therapists. Intensive care units, in contrast, are likely to employ professional nurses to the exclusion of other categories of nursing staff.

The relatively routine nature of technology on medical units allows more than the average number of units to be supervised by one person.

TABLE 10

Horizontal Complexity
Newman-Keuls Comparisons Between Ordered Means

Complexity of Nursing Staff									
	REHAB	PAEDS	AUX	RURAL	SURG	MED	PSYCH	OBS	ICU
Means	3.929	3.737	3.625	3.222	3.000	2.920	2.800	2.545	2.455
ICU	1.474*	1.282	1.170	0.768	0.545	0.465	0.345	0.091	0.000
OBS	1.383	1.191	1.080	0.677	0.455	0.375	0.255	0.000	
PSYCH	1.129	0.937	0.825	0.422	0.200	0.120	0.000		
MED	1.009	0.817	0.705	0.302	0.080	0.000			
SURG	0.929	0.737	0.625	0.222	0.000				
RURAL	0.706	0.515	0.403	0.000					
AUX	0.304	0.112	0.000						
PAEDS	0.192	0.000							
REHAB	0.000								
R =	9	8	7	6	5	4	3	2	
$q_{.95(r,137)} \times M =$	1.40	1.37	1.33	1.29	1.23	1.16	1.06	0.89	

$M(\text{multiplier}) = 0.31960$

* indicates significance at the 0.05 level

Figure 3. Horizontal Complexity
Ordered Nursing Sub-units

Complexity of Nursing Staff

High REHAB PAEDS AUX RURAL SURG MED PSYCH OBS ICU Low

Complexity of Administration

High SURG ICU MED PAEDS REHAB AUX RURAL PSYCH OBS Low

Note: The underlines indicate groups for which there is no significant difference between mean item scores.

There are no significant differences in complexity of administration across the units. All units apparently operate with a similar number of categories of administrative and clerical staff. This may be a result of administrative policies.

Vertical Complexity

Vertical complexity is examined in terms of the number of authority levels within the nursing units. Analysis of variance is then used to determine if there are differences in the mean levels across the 9 types of nursing units.

Sub-Unit Differences

Analysis of variance procedures were used to examine the differences between the 9 types of nursing units in relation to a measure of vertical complexity. Vertical complexity was derived by computing the number of levels of leadership and was based on whether a unit had a headnurse, an assistant headnurse, a team leader and other leadership positions (refer to Appendix C-Staffing). Table 11 shows the results of the analysis of variance.

The F statistic was computed as 0.0509 which is only slightly higher than the chosen value of alpha of 0.05. However this does not justify rejection of the null hypothesis of no difference in unit means. Therefore there is judged to be no significant difference in vertical complexity. This result may be due to hospital personnel policies that apply to all units.

TABLE 11

Vertical Complexity

Item	Source	Sum Squares	Mean Squares	DF	F	P
Level of Leadership	Groups	4.61	0.66	7	2.07	0.05**
	Error	40.98	0.32	129		

** The computed value was 0.0509 which is only slightly higher than the chosen alpha of 0.05. However, this does not justify rejection of the null hypothesis.

Formalization of Evaluation

Formalization of evaluation is examined in terms of the extent to which written forms are used for evaluation, the areas of performance evaluated and the frequency with which evaluations are performed. The scores are examined to determine if there are differences between the 9 types of nursing units.

Sub-Unit Differences

The five items seeking to measure formalization of evaluation are shown below (refer to Appendix B). Headnurses were requested to respond to these questions.

Item

75. Does hospital policy require that a written evaluation of personnel be carried out?
 ___ yes ___ no
76. Does your unit have any written evaluation forms to evaluate its employees?
 ___ yes ___ no
77. What areas of nursing performance are evaluated on the form?
- | | |
|--|--------------------------|
| ___ clinical nursing skills | ___ motivation to follow |
| ___ human skills with patients | ___ rules and procedures |
| ___ ability to get along with colleagues | ___ leadership potential |
| ___ ability to get along with physicians | ___ teaching ability |
| | ___ other, specify _____ |
78. Approximately how frequently are formal written evaluation forms usually completed for each nurse?
- | | |
|--------------------|-------------------------|
| ___ every 3 months | ___ once a year |
| ___ every 6 months | ___ once very two years |

79. Is the written evaluation usually discussed with the staff member?

____ yes ____ no

The responses to items 75, 76 and 79 were almost identical. Of the 152 units having complete responses to these items, 151 reported that hospital policy requires that a written evaluation be carried out, that written evaluation forms be used and that the evaluation was usually discussed with the staff member. Table 12 shows the details of these results.

The remaining two items (77 and 78) were examined using analysis of variance procedures, the results of which are shown in Table 13. In addition, the Newman-Keuls procedure for comparisons between ordered means was used to examine differences between units on items 77 and 78 and the results are displayed in Table 14. A level of significance of 0.05 was used in interpreting the results. Where differences were not statistically significant, the units are considered to be equivalent on formalization of evaluation.

The DERS computer program deleted rehabilitation and auxiliary units from the analysis of variance on item 78 (frequency of evaluation) since both of these units reported a variance of zero. Apparently these units are characterized by very uniform frequency of evaluation in all hospitals.

With respect to areas of performance evaluation, the analysis of variance procedure indicated that significant differences do exist between units. The Newman-Keuls procedure however, did not

TABLE 12

Formalization of Evaluation

75. Written evaluation required.

	MED	SURG	ICU	REHAB	AUX	PAEDS	PSYCH	OBS	RURAL	TOTAL
No	0	0	0	0	0	0	0	0	1	1
Yes	25	34	12	14	10	19	15	13	9	151
Total	25	34	12	14	10	19	15	13	10	152

76. Written evaluation forms.

	MED	SURG	ICU	REHAB	AUX	PAEDS	PSYCH	OBS	RURAL	TOTAL
No	0	0	0	0	0	0	0	0	1	1
Yes	25	34	12	14	10	19	15	13	9	151
Total	25	34	12	14	10	19	15	13	10	152

79. Discussion of written evaluation.

	MED	SURG	ICU	REHAB	AUX	PAEDS	PSYCH	OBS	RURAL	TOTAL
No	0	0	0	0	0	0	0	0	1	1
Yes	25	34	12	14	10	19	15	13	9	151
Total	25	34	12	14	10	19	15	13	10	152

TABLE 13

Formalization of Evaluation

Item	Source Squares	Sum Squares	Mean	DF	F	P
77. Areas of Performance	Groups Error	36.59 269.28	4.57 1.97	8 137	2.33	0.02*
78. Frequency of Evaluation	Groups Error	4.69 23.18	0.78 0.20	6 116	3.91	0.00*

* indicates significance at the 0.05 level.

TABLE 14

Formalization of Evaluation

Newman-Keuls Comparisons Between Ordered Means

Frequency of Performance Evaluation

	PSYCH	MED	ICU	SURG	OBS	PAEDS	RURAL
Means	2.500	2.120	2.083	1.941	1.909	1.889	1.778
RURAL	0.722*	0.342	0.306	0.163	0.131	0.111	0.000
PAEDS	0.611*	0.231	0.194	0.052	0.020	0.000	
OBS	0.591*	0.211	0.174	0.032	0.000		
SURG	0.559*	0.179	0.142	0.000			
ICU	0.417	0.037	0.000				
MED	0.380	0.000					
PSYCH	0.000						
R =	7	6	5	4	3	2	
$q_{.95}(r, 116) \times M =$	0.49	0.48	0.46	0.43	0.39	0.33	

M(multiplier) = 0.11728

* indicates significance at the 0.05 level

TABLE 14

Formalization of Evaluation

Newman-Keuls Comparisons Between Ordered Means

Areas of Performance Evaluation

	Means	OBS	PAEDS	SURG	MED	PSYCH	ICU	REHAB	RURAL	AUX
AUX	4.500	6.182	6.000	5.971	5.880	5.786	5.750	5.077	4.667	4.500
RURAL	4.667	1.682	1.500	1.471	1.380	1.286	1.250	0.577	0.167	0.000
REHAB	5.077	1.515	1.333	1.304	1.213	1.119	1.083	0.410	0.000	
ICU	5.750	1.105	0.923	0.894	0.803	0.709	0.673	0.000		
PSYCH	5.786	0.432	0.250	0.221	0.130	0.036	0.000			
MED	5.880	0.396	-0.214	0.185	0.094	0.000				
SURG	5.971	0.302	0.120	0.091	0.000					
PAEDS	6.000	0.211	0.029	0.000						
OBS	6.182	0.182	0.000							
R	=	9	8	7	6	5	4	3	2	
$q_{.95}(r, 137) \times M$	=	1.69	1.65	1.60	1.55	1.48	1.40	1.27	1.06	

M(multiplier) = 0.37928

Figure 4. Formalization of Evaluation

Ordered Nursing Subunits

Areas of Performance Evaluation

High OBS PAEDS SURG MED PSYCH ICU REHAB RURAL AUX Low

Frequency of Evaluation

High PSYCH MED ICU SURG AUX* REHAB* OBS PAEDS RURAL Low

Note: The underlines indicate groups for which there is no significant difference between mean item scores.

*Although the DERS computer program deleted both rehabilitation and auxiliary units, the group to which they belong was displayed by SPSS.

find any significant differences and accordingly all units are judged to be equivalent on this item. This may be due to performance evaluation being a personnel function and as a result a standard form has been developed.

The extremes of the ordering shown in Figure 4 demonstrate a difference between psychiatric and rural units with respect to frequency of evaluation. Psychiatric units may score highly on this item because staff employed there routinely evaluate behaviour and attitudes of patients in their care. They may therefore see evaluation of staff as an important factor and as a result do it more often.

Rule Definition

An attempt was made to measure rule definition by ascertaining whether or not a variety of documents (refer to Appendix C) were available on each unit. Examples of these documents include a contract of employment, hospital organization chart, nursing procedure manual, instructions for shift work and condition sheets. In general there was very little variation across units on the existence of such documents. This consistency can probably be attributed in large part to hospital accreditation procedures that either require or strongly recommend that a variety of documents of this nature be prepared and maintained. In addition it was not possible to determine from the data available where documents were absent because of neglect or because they were not required or needed. Accordingly analysis and interpretation of rule definition

has been omitted.

Role Definition

In order to measure role definition, Nursing Administrators were asked to indicate, for a variety of positions, whether or not written position descriptions existed (refer to Appendix C). Aside from a number of positions expected on each unit (headnurse, registered nurse for example), some positions would not exist on particular units and there would therefore be no position descriptions. However, on the basis of the data collected, it was not possible to determine if a particular position description was absent because of neglect or because the position did not exist on the unit. Furthermore, where position descriptions were found, it was felt that their existence may reflect accreditation policies that require or strongly recommend that position descriptions be prepared and maintained. Accordingly, analysis and interpretation of role definition has been omitted.

PROCESS

The presentation of results now turns to the variables of leadership, control, communication and coordination. These comprise the concept of process.

Leadership

Leadership is examined in terms of the human relation and the

technical and administrative skills of the headnurse. The item scores are factor analyzed following which analysis of variance was used to explore differences between the 9 types of nursing units on the basis of the mean factor scores.

Factor Analysis

A two factor orthogonal analysis using varimax rotation provided the solution shown in Table 13. Nine items were reduced to two factors which account for 83% of the variance in unit responses. The factors are described below with an analysis and listing of those items with a loading of 0.50 or greater.

Factor I. The items loading highly on this factor relate to the extent to which the Headnurse encourages the exchange of opinions and ideas (item 42), how well the Headnurse handles the technical side of her job (item 43), the extent to which the staff can influence the activities and decisions of the Headnurse on matters that concern them, (item 44), the frequency with which work time is lost because of poor planning on the part of the Headnurse (item 45) and the amount of confidence and trust placed in the Headnurse (item 46). This factor was labelled "task leadership". Those items with loadings of 0.50 or greater are listed below. Nursing staff were requested to respond to these questions in terms of the extent to which the specified condition existed (refer to Appendix A). A high score corresponds to "more" of the condition

TABLE 15

Leadership

Factor Analysis - Orthogonal Solution Varimax Rotation

Item	Content	Communi- alities	Factor Loading	
			I	II
42.	Encourage exchange	0.686	0.618	-0.551
43.	Technical skill	0.882	0.939	-0.026
44.	Influence on Headnurse	0.850	0.909	-0.155
45.	Poor planning	0.788	0.849	-0.259
46.	Confidence	0.887	0.941	0.019
38.	Listens to problems	0.861	-0.195	0.907
39.	Headnurse interested	0.864	0.041	0.929
40.	Maintain high standards	0.820	-0.123	0.897
41.	Headnurse offers ideas	0.884	-0.170	0.925

with the exception of item 45 where a high score indicates an absence of lost work time.

Item

42. To what extent does your Headnurse encourage people who work for her to exchange opinions and ideas?

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

43. How well does your Headnurse handle the technical side of her job - for example, general expertise, knowledge of job, technical skills needed, etc.

☐ extremely well	☐ not too well
☐ very well	☐ not well at all
☐ fairly well	

44. To what extent do you feel you personally can influence the activities and decisions of your Headnurse on matters that are of concern to you?

☐ to a very little extent	☐ to some extent
☐ to a considerable extent	☐ to no extent
☐ to a moderate extent	

45. How frequently is work time lost because your Headnurse fails to do the proper planning and scheduling?

☐ quite frequently	☐ almost never
☐ frequently	☐ never
☐ occasionally	

46. How much confidence and trust do you have in your Headnurse?

☐ none	☐ a great deal
☐ not very much	☐ complete confidence
☐ a fair amount	☐ and trust

Factor II. The aspects of leadership relating to this factor were the extent to which the Headnurse was willing to listen to problems (item 38), the extent to which the Headnurse had an interest in the welfare and problems of the nursing group (item

39), the extent to which the Headnurse encouraged the maintenance of high standards (item 40), the extent to which the Headnurse offered new ideas for solving job-related problems (item 41) and the extent to which exchange of opinions and ideas was encouraged (item 42). This factor was labelled "socio-emotional leadership". The items with loadings of 0.50 or greater are listed below.

Nursing staff were requested to respond to these items in terms of the extent to which the condition was true (refer to Appendix A).

High scores correspond to "more" of the condition.

Item

38. To what extent is your Headnurse willing to listen to your problems?
- | | |
|--|---|
| ☐ to a very little extent | ☐ to a great extent |
| ☐ to a little extent | ☐ to a very great extent |
| ☐ to some extent | |
39. To what extent does your Headnurse have a sincere and friendly interest in the personal welfare and problems of your nursing group?
- | | |
|--|---|
| ☐ to a very little extent | ☐ to a great extent |
| ☐ to a little extent | ☐ to a very great extent |
| ☐ to some extent | |
40. How much does your Headnurse encourage people to maintain high standards of nursing care?
- | | |
|--|---|
| ☐ to a very little extent | ☐ to a great extent |
| ☐ to a little extent | ☐ to a very great extent |
| ☐ to some extent | |
41. To what extent does your Headnurse offer new ideas for solving job-related problems?
- | | |
|--|---|
| ☐ to a very little extent | ☐ to a great extent |
| ☐ to a little extent | ☐ to a very great extent |
| ☐ to some extent | |
42. To what extent does your Headnurse encourage people who work for her to exchange opinions and ideas.

___ to a very little extent	___ to a great extent
___ to a little extent	___ to a very great extent
___ to some extent	

Sub-unit Differences

Table 16 shows the results of analysis of variance procedures to examine the differences between the 9 types of nursing units in relation to the means of the two factors, task leadership and socio-emotional leadership. Using the F test at a 0.05 level of significance it is apparent that there are no statistically significant differences on mean leadership factor scores across the units.

The finding that there are no differences may be due to the socialization that is implicit in the training and education that nurses undergo. Furthermore promotions to headnurse positions may be based on criteria that are common across the units since the analysis of the data showed that there were essentially no differences across the units in terms of performance evaluation.

The commonality of leadership across the units may also be due in part to a problem of measurement. In spite of promises of confidentiality, nursing staff were being asked to criticize their headnurses and may have been reluctant to respond to the questions in a completely honest manner. This may have resulted in a tendency for nurses to be uniformly neutral in their responses.

Item 42, the extent to which exchange of opinions and ideas is encouraged by the Headnurse, appears in both factors. In the case of the first factor, "task leadership", it appears as a positive

TABLE 16
LEADERSHIP
ANALYSIS OF VARIANCE ON FACTOR SCORES

Factor	Source Squares	Sum Squares	Mean	DF	F	P
I. Task Leadership	Groups	4.04	0.51	8	0.49	0.86
	Error	149.95	1.03	146		
II. Socio-emotional Leadership	Groups	5.85	0.73	8	0.72	0.67
	Error	148.15	1.01	146		

correlation which is not surprising since progress towards objectives normally requires information exchange. A negative correlation for this item appears in the second factor, "socio-emotional leadership". This relationship may be consistent with the expectation that high scores on socio-emotional leadership implies confidentiality which of course would be incongruent with exchange of information.

Control

Twelve items were used to measure various aspects of control that exist on nursing units. Of these, six were perceptual in nature and six were attempting to obtain factual data. The perceptual measures were subjected to factor analysis procedures as described below. The factual items were treated individually and analyzed either by analysis of variance procedures or by the use of contingency tables.

Factor Analysis - Perceptual Items

A two factor orthogonal analysis of items 61 to 66 from the Nursing Staff Questionnaire using varimax rotation provided the solution shown in Table 17. Six items were reduced to two factors which account for 86% of the variance in unit responses. The factors are described below with an analysis and listing of those items with a loading of 0.50 or greater.

TABLE 17

CONTROL

Perceptual Items

Factor Analysis - Orthogonal Solution Varimax Rotation

Item	Content	Commun- alities	Factor Loading	
			I	II
63.	Colleagues	0.909	0.940	0.156
64.	Attending Physicians	0.867	0.890	0.275
65.	Strict procedures followed	0.780	0.825	0.315
66.	Self-check	0.898	0.944	0.082
61.	Review by Headnurse	0.899	-0.049	-0.947
62.	Review by Physicians	0.792	0.446	0.770

Factor I. The items loading highly on this factor relate to the percentage of mistakes or oversights called to a nurse's attention by a colleague (item 63), the percentage of mistakes or oversights called to a nurse's attention by an attending physician (item 64), the percentage of time it is necessary to follow strict nursing procedures (item 65) and the percentage of time nurses check themselves to see if they are following the rules (item 66). This factor was labelled "informal task control". Those items with loading of 0.50 or greater are listed below. Nursing staff were requested to respond to these questions in terms of the percentage of time the situations occurred (refer to Appendix A). High scores correspond to more frequent occurrences.

Item

63. What percentage of your oversights or mistakes is likely to be called to your attention by your colleagues?
- () 0-5% () 6-25% () 26-50% () 51-75%
() 76-100%
64. What percentage of your oversights or mistakes is likely to be called to your attention by attending physicians?
- () 0-5% () 6-25% () 26-50% () 51-75%
() 76-100%
65. What percentage of the time is it necessary to follow strict nursing procedures?
- () 0-5% () 6-25% () 26-50% () 51-75%
() 76-100%
66. What percentage of the time do you check to see if you are following the rules?
- () 0-5% () 6-25% () 26-50% () 51-75%
() 76-100%

Factor II. The aspects of control comprising this factor involve the percentage of work reviewed by the Headnurse (item 61) and the percentage of work reviewed by attending physicians (item 62). This factor was labelled "formal task control". The two items with large loadings are listed below. Nursing staff were requested to respond to these questions in terms of the frequency with which the condition occurred (refer to Appendix A). High mean scores correspond to more frequent occurrences. Item

61. What percentage of your work is checked or reviewed by your Headnurse?

- ☐ 0-5% ☐ 6-25% ☐ 26-50% ☐ 51-75%
☐ 76-100%

62. What percentage of your work is checked or reviewed by attending physicians?

- ☐ 0-5% ☐ 6-25% ☐ 26-50% ☐ 51-75%
☐ 76-100%

This factor displays a contrast between the control exercised by physicians and Headnurses. That is to say, the factor loadings indicate that one is at least a partial substitute for the other.

Sub-unit Differences - Perceptual Items

Analysis of variance, the results of which are displayed in Table 18, shows that there are no statistically significant differences between the nursing units in terms of the mean scores of the perceptual measures of control. The F test at the 0.05 level of significance was used in analyzing the results of the analysis of variance procedure.

TABLE 18

CONTROL

Perceptual Items

Analysis of Variance on Factor Scores

Factor	Source	Sum Square	Mean Square	DF	F	P
I. Informal Task Control	Groups	12.90	1.61	8	1.67	0.11
	Error	141.09	0.97	146		
II. Formal Task Control	Groups	6.13	0.77	8	0.76	0.64
	Error	147.86	1.01	146		

The similarities between units with respect to informal task control may be due to the socialization process of nursing education at least insofar as having oversights or mistakes pointed out by colleagues. The relative authority of the physicians may tend to result in a similar percentage of mistakes being pointed out by them. The similarity in role specificity found during the analysis of structural items seems to be consistent with the finding that, in general, nurses, irrespective of unit type find it necessary to follow the rules and strict nursing procedures the same percentage of time.

Sub-unit Differences - Factual Items

Analysis of variance procedures were used to determine the differences between the 9 types of nursing units on mean scores of five of the six factual items intended to measure control. The results are shown in Table 19. The sixth item is a dichotomous variable and is discussed later. The existence of significant between mean scores differences was tested at the 0.05 level using the F test.

Headnurses were requested to respond to the following questions (refer to Appendix B). High scores for items 80 and 81 correspond to a larger number of methods of reporting. Items 82, 83 and 85 score highly with increasing frequency.

Item

80. How are medication errors reported? (Check more than one if necessary)

TABLE 19
CONTROL
Factual Items
Analysis of Variance on Mean Item Scores

Item	Source	Sum Squares	Mean Squares	DF	F	P
80. Medication errors	Groups	44.89	5.61	8	0.71	0.68
	Error	1129.63	7.90	143		
81. Patient accidents	Groups	40.15	5.02	8	0.81	0.59
	Error	883.69	6.18	143		
82. Nursing notes	Groups	79.09	9.89	8	14.96	0.00*
	Error	92.55	0.66	140		
83. Kardex	Groups	39.48	4.93	8	4.11	0.00*
	Error	170.62	1.20	142		
85. Narcotic check	Groups	4.51	0.56	8	2.55	0.01*
	Error	31.70	0.22	143		

* indicates significance at the 0.05 level

- ☐ verbally to supervisor
☐ and physician
☐ written on special form
 ☐ written on patient chart
☐ doctor's signature
☐ required
81. How are patient accidents reported? (Check more than one if necessary)
- ☐ verbally to supervisor
☐ and physician
☐ written on special form
 ☐ written on patient chart
☐ doctor's signature
☐ required
82. How frequently are you required to record on patients charts? (i.e. nursing notes)? (Check one)
- ☐ at least once a day
☐ at least once a shift
 ☐ several times a shift
☐ no frequency required, only reporting by exception
83. How frequently are you required to update the nursing care plan (Kardex)? (Check one)
- ☐ several times a shift
☐ at least once a shift
☐ at least once a day
 ☐ once a week
☐ no frequency required, only reporting by exception
85. How frequently are narcotics checked on your unit? (Check one)
- ☐ several times a shift
☐ at least once a shift
☐ at least once a day
 ☐ no frequency required, only reporting by exception

The ordering of the nursing units on the mean scores for these items is shown in Figure 5.

The Newman-Keuls procedure for comparison between ordered means was performed for the three items for which significant differences exist across the nursing units according to the F test. A level of significance of 0.05 was used in interpreting the results which are to be found in Table 20.

The methods of reporting of medication errors and patient accidents was not significantly different between units. The

TABLE 20

CONTROL

Newman Keuls Comparisons Between Ordered Means

Item 82. Frequency of Updating Patient Records

	REHAB	AUX	PSYCH	MED	RURAL	PAEDS	OBS	SURG	ICU	MEANS
Means	0.846	1.222	2.400	2.708	2.800	2.833	2.923	2.971	3.667	
REHAB										
AUX	2.821*									
PSYCH	2.444*	2.124*								
MED	1.267*	1.748*	1.987*							
RURAL	0.958*	0.571	1.611*	1.862*						
PAEDS	0.867	0.262	0.433	1.486*	1.954*					
OBS	0.833	0.171	0.125	0.308	1.578*	1.987*				
SURG	2.971	0.137	0.092	0.000	0.400	0.433	2.077*			
ICU	3.667	0.000	0.000	0.000	0.092	0.033	0.123	0.090		
R =	9	8	7	6	5	4	3	2		
$q_{.95(r,140)} \times M =$	0.96	0.93	0.91	0.88	0.84	0.79	0.72	0.60		
$M(\text{multiplier}) =$	0.21777									

* indicates significance at the 0.05 level

TABLE 20

CONTROL

Newman-Keuls Comparisons Between Ordered Means

Item 83. Frequency of Updating Nursing Care Plan (Kardex)

	ICU	SURG	OBS	MEDS	RURAL	MED	REHAB	PSYCH	AUX
Means	3.083	3.059	2.923	2.889	2.800	2.750	2.000	1.867	1.333
AUX	1.750*	1.725*	1.590*	1.556*	1.467*	1.417*	0.667	0.533	0.000
PSYCH	1.217	1.192	1.056	1.022	0.933	0.883	0.133	0.000	
REHAB	1.083	1.059	0.923	0.889	0.800	0.750	0.000		
MED	0.333	0.309	0.173	0.139	0.050	0.000			
RURAL	0.283	0.259	0.123	0.089	0.000				
PAEDS	0.194	0.170	0.034	0.000					
OBS	0.160	0.136	0.000						
SURG	0.025	0.000							
ICU	0.000								
R =	9	8	7	6	5	4	3	2	
$q_{.95(r,142)} \times M =$	1.28	1.25	1.21	1.17	1.12	1.06	0.96	0.81	

M(multiplier) = 0.29119

* indicates significance at the 0.05 level

TABLE 20

CONTROL

Newman-Keuls Comparisons Between Ordered Means

Item 85. Frequency of Narcotic Check

	MED	PAEDS	SURG	RURAL	AUX	OBS	REHAB	PSYCH	ICU
Means	2.958	2.944	2.941	2.900	2.889	2.846	2.846	2.667	2.333
ICU	0.625*	0.611*	0.608*	0.567*	0.556*	0.513*	0.513*	0.333	0.000
PSYCH	0.292	0.278	0.275	0.233	0.222	0.179	0.179	0.000	
REHAB	0.112	0.098	0.095	0.054	0.043	0.000	0.000		
OBS	0.112	0.098	0.095	0.054	0.043	0.000			
AUX	0.069	0.056	0.052	0.011	0.000				
RURAL	0.058	0.044	0.041	0.000					
SURG	0.017	0.003	0.000						
PAEDS	0.014	0.000							
MED	0.000								
R =	9	8	7	6	5	4	3	2	
$q_{.95(r,143)} \times M =$	0.55	0.54	0.53	0.51	0.49	0.46	0.42	0.35	

M(multiplier) = 0.12601

* indicates significance at the 0.05 level

Figure 5. Control - Factual Items
Ordered Nursing Sub-units

Item 80. Reporting Medication Errors

High OBS PAEDS SURG REHAB PSYCH ICU MED RURAL AUX Low

Item 81. Reporting Patient Accidents

High REHAB PAEDS SURG OBS MED RURAL PSYCH ICU AUX Low

Item 82. Updating Patients' Records

High ICU SURG OBS PAEDS RURAL MED PSYCH AUX REHAB Low

Item 83. Updating Nursing Care Plan (Kardex)

High ICU SURG PAEDS OBS RURAL MED REHAB PSYCH AUX Low

Item 85. Frequency of Narcotic Check

High MED PAEDS SURG RURAL REHAB OBS AUX PSYCH ICU Low

Note: The underlines indicate groups for which there is no significant difference between mean unit item scores.

similarity is not surprising because of three factors. First, some medication errors could have serious consequences with respect to patient well being and must therefore be avoided. Patient accidents present a similar concern. Second, while patients are receiving treatment there is some legal liability assumed by the hospital as regards negligence on the part of staff. And third, the basic concern of treatment is to cure and care for patients and to avoid or avert circumstances that impede the patient's progress.

The frequency of updating patients' records does vary across units although it is only the extremes that show significant differences. The need to carefully and frequently monitor and record information about patients places intensive care units at the high end of this scale. Time is a critical factor for patients with severe disorders and treatments will require up to date information on their condition. Rehabilitation units, at the low end of the scale, deal with patients who are subject to less frequent changes in their conditions and therefore there is less frequent recording.

The differences between units with respect to frequency of updating nursing care plans is represented by the extremes of the ordering in Figure 5. On units such as intensive care, surgery and paediatrics, patient conditions are likely to change more rapidly than would be the case in auxiliary units at the low end of the scale. There is more need on the former, therefore, to frequently modify care plans.

For all intents and purposes, there are no differences between units in terms of the frequency with which narcotic checks are performed. There is so much overlap in the subsets as shown in Figure 5 that differences are likely marginal at best. The similarities as shown by the subsets are to be expected due to the existence of legislation that controls the use of narcotics. Aside from the need to abide by legislation, hospitals would probably be concerned about the potential danger to patients that could occur by the misuse of such drugs.

The last item measuring control had to do with the existence of a nursing audit. Headnurses were asked to respond to the following item (refer to Appendix B).

Item

84. Do you have a nursing audit on your unit?

☐ yes ☐ no

The response to this question was either "yes" or "no" and therefore this dichotomous variable was analyzed using contingency tables. The results are shown in Table 21. The data do not support the hypothesis that there is a relationship between type of unit and the presence or absence of a nursing audit. The uniformity across units may be a reflection of accreditation procedures and personnel policies.

TABLE 21

Existence of a Nursing Audit

	MED	SURG	ICU	REHAB	AUX	PAEDS	PSYCH	OBS	RURAL	TOTAL
NO	6	7	4	6	6	4	5	3	6	47
YES	19	27	7	8	4	15	10	10	4	104
TOTAL	25	34	11	14	10	19	15	13	10	151

Raw chi square 12.50, 8 degrees of freedom. Significance = 0.13.

Communication

Analysis of variance procedures were used to examine differences between units on four items intended to provide a measure of communication. A level of significance of 0.05 was used to test for differences using the F test. The results are displayed in Table 22. Nursing staff were requested to respond to the following items (refer to Appendix A). High scores correspond to more frequent and more adequate communication.

Item

57. In general, how do you feel about the kind of communication which you receive from your Headnurse? (Check one)

☐ completely adequate	☐ rather adequate
☐ very adequate	☐ inadequate
☐ fairly adequate	

58. In general, how do you feel about the kind of information and communication which you receive from attending physicians in your unit? (Check one)

☐ completely adequate	☐ rather adequate
☐ very adequate	☐ inadequate
☐ fairly adequate	

59. How often do you usually talk with your Headnurse or immediate superior about each of the following things? (Check one for each item)

	About once a week or less	2 or 3 times a week	Several times a week	About once a day	Several times a shift or more
About ways in which patient care could be improved	()	()	()	()	()

TABLE 22

Communication

Item	Source	Sum Squares	Mean Squares	<u>DF</u>	<u>F</u>	<u>P</u>
57. Headnurse	Groups	59.92	7.49	8	0.49	0.86
	Error	2227.24	15.15	147		
58. Physicians	Groups	8.20	1.03	8	0.48	0.87
	Error	316.40	2.15	147		
59. Headnurse (frequency)	Groups	292.41	36.55	8	1.27	0.27
	Error	4188.75	28.89	145		
60. Colleagues	Groups	12.33	1.54	8	0.78	0.62
	Error	290.19	1.97	147		

	About once a week <u>or less</u>	2 or 3 times a week	Several times a week	About once a day	Several times a shift <u>or more</u>
About ways in which nursing supervision could be improved	()	()	()	()	()
About work	()	()	()	()	()
About employee wages, hours or benefits	()	()	()	()	()
About ways in which working relations with other departments in the hospital could be improved	()	()	()	()	()
About ways in which satisfaction or morale among nursing personnel could be improved	()	()	()	()	()

60. How many times per day, on average, do you confer informally (to discuss your day-to-day work problems) with other members of the nursing staff of your unit? (Check one)

☐ no times per day ☐ 2 or 3 times a day
☐ once a day ☐ many times a day

Item 59 was simplified by summing the responses to the various parts of the question.

Subunit Differences

As Table 22 demonstrates, there are no significant differences between nursing units on the communication items scores. This may

be a result of communication being a reflection of both informal and professional behaviour which are not likely to be impacted to any large extent by policy differences that may exist between units. The socialization process may be more important. Another factor to consider is that since the questions were asked of nursing staff about their supervisors, the data may reflect socially desirable responses and thus there may be a measurement problem with this data.

Coordination

Analysis of variance procedures were used to examine the differences between nursing units on eight items intended to provide a measure of coordination. A level of significance of 0.05 was used to test for differences using the F test. The results of this analysis are displayed in Table 23. For those items that showed statistically significant differences on the basis of the F test, a Newman-Keuls analysis was performed and the results are given in Table 24. The ordering of the units on coordination scores is shown in Figure 6.

The items seeking to measure coordination are listed below (refer to Appendix B). Headnurses were asked to respond to these questions. High scores are indicative of increased coordination.

Item

4. To what extent are you as a Headnurse the coordinator of work within your unit?

TABLE 23

Coordination

Item	Source	Sum Squares	Mean Squares	DF	F	P
4. Headnurse as Coordinator	Groups Error	2.21 59.87	0.28 0.42	8 143	0.66	0.73
5. Regular coordination meetings	Groups Error	17.01 108.86	2.13 0.77	8 142	2.74	0.01*
6. Ad hoc problem solving	Groups Error	4.33 110.55	0.54 0.78	8 142	0.70	0.70
7. Routine procedures	Groups Error	5.91 120.98	0.74 0.85	8 143	0.87	0.54
8. Standing orders	Groups Error	119.03 227.51	14.88 1.60	8 142	9.29	0.00*
9. Medications by one R.N.	Groups Error	51.76 422.83	6.47 3.00	8 141	2.16	0.03*
10. Baths by one or two R.N.'s	Groups Error	27.35 174.64	3.42 1.22	8 143	2.80	0.01*
11. Patient assignment	Groups Error	6.08 91.89	0.72 0.65	8 142	1.18	0.32

Figure 6. Coordination
Ordered Nursing Sub-Units

Item 4. Headnurse acts as Coordinator	
High	<u>ICU OBS MED SURG RURAL REHAB PAEDS PSYCH AUX</u> Low
Item 5. Regular Nursing Staff Meetings	
High	<u>RURAL PSYCH PAEDS AUX REHAB SURG OBS MED ICU</u> Low
Item 6. Ad-Hoc Problem Solving	
High	<u>PSYCH REHAB PAEDS RURAL OBS SURG ICU AUX MED</u> Low
Item 7. Routine Nursing Procedures	
High	<u>OBS AUX SURG PAEDS REHAB MED ICU RURAL PSYCH</u> Low
Item 8. Use of Standing Orders	
High	<u>OBS AUX RURAL SURG REHAB ICU PSYCH PAEDS MED</u> Low
Item 9. Medications given by One R.N.	
High	<u>PSYCH OBS RURAL AUX REHAB SURG MED ICU PAEDS</u> Low
Item 10. Baths Given by One or Two R.N.'s	
High	<u>ICU PSYCH RURAL AUX REHAB MED OBS SURG PAEDS</u> Low
Item 11. Patient Assignment (recoded)	
High	<u>RURAL AUX OBS SURG PAEDS MED REHAB ICU PSYCH</u> Low

Note: The underlines indicate groups for which there is no significant difference in mean item scores.

TABLE 24

Coordination

Newman-Keuls Comparisons Between Ordered Means

Item 5. Regular Nursing Staff Meetings

	RURAL	PSYCH	PAEDS	AUX	REHAB	SURG	OBS	MED	ICU
Means	3.889	3.600	3.588	3.500	3.500	3.121	3.077	2.960	2.667
ICU	1.222*	0.933	0.922	0.833	0.833	0.455	0.410	0.293	0.000
MED	0.929	0.640	0.628	0.540	0.540	0.161	0.117	0.000	
OBS	0.812	0.523	0.511	0.423	0.423	0.044	0.000		
SURG	0.768	0.479	0.467	0.379	0.379	0.000			
REHAB	0.389	0.100	0.088	0.000	0.000				
AUX	0.389	0.100	0.088	0.000					
PAEDS	0.301	0.012	0.000						
PSYCH	0.289	0.000							
RURAL	0.000								
R =	9	8	7	6	5	4	3	2	
$q_{.95}(r, 142)_{\alpha M} =$	1.034	1.010	0.982	0.949	0.909	0.855	0.779	0.652	

M(multiplier) = 0.23553

* indicates significance at the 0.05 level

TABLE 24

COORDINATION

Newman-Keuls Comparisons Between Ordered Means

Item 8. Use of Standing Orders

	OBS	AUX	RURAL	SURG	REHAB	ICU	PSYCH	PAEDS	MED
Means	4.308	3.600	3.333	2.667	2.571	2.000	1.867	1.824	1.240
MED	3.068*	2.360*	2.093*	1.427*	1.331*	0.760	0.627	0.584	0.000
PAEDS	2.484*	1.776*	1.510*	0.843	0.748	0.176	0.043	0.000	
PSYCH	2.441*	1.733*	1.467*	0.800	0.705	0.133	0.000		
ICU	2.308*	1.600*	1.333	0.667	0.571	0.000			
REHAB	1.736*	1.029	0.762	0.095	0.000				
SURG	1.641*	0.933	0.667	0.000					
RURAL	0.974	0.267	0.000						
OBS	0.000								
R =	9	8	7	6	5	4	3	2	
$q_{.95(r,142)} \times M =$	1.487	1.453	1.412	1.365	1.307	1.229	1.121	0.938	

M(multiplier) = 0.33867

* indicates significance at the 0.05 level

TABLE 24

Coordination

Newman-Keuls Comparisons Between Ordered Means

Item 9. Medications Given by One R.N.

	PSYCH	OBS	RURAL	AUX	REHAB	SURG	MED	ICU	PAEDS
Means	4.133	3.846	3.667	3.500	3.357	3.273	2.880	2.667	2.118
PAEDS	2.016*	1.729*	1.549*	1.382*	1.239	1.155	0.762	0.549	0.000
ICU	1.467*	1.179	1.000	0.833	0.690	0.606	0.213	0.000	
MED	1.253	0.966	0.787	0.620	0.477	0.393	0.000		
SURG	0.861	0.573	0.394	0.227	0.084	0.000			
REHAB	0.776	0.489	0.310	0.143	0.000				
AUX	0.633	0.346	0.167	0.000					
RURAL	0.467	0.179	0.000						
OBS	0.287	0.000							
PSYCH	0.000								
R =	9	8	7	6	5	4	3	2	
$Q_{.95}(r, 141) \times M =$	1.46	1.427	1.387	1.340	1.284	1.207	1.101	0.921	

M(multiplier) = 0.33257

* indicates significance at the 0.05 level

TABLE 24

Coordination

Newman-Keuls Comparisons Between Ordered Means

Item 10. Baths Given By One or Two R.N.'s

	ICU	PSYCH	RURAL	AUX	REHAB	MED	OBS	SURG	PAEDS
Means	2.417	2.067	1.800	1.800	1.786	1.280	1.232	1.177	1.053
PAEDS	1.364*	1.014	0.747	0.747	0.733	0.227	0.178	0.124	0.000
SURG	1.240*	0.890	0.623	0.623	0.609	0.103	0.054	0.000	
OBS	1.186	0.836	0.569	0.569	0.555	0.049	0.000		
MED	1.137	0.787	0.520	0.520	0.506	0.000			
REHAB	0.631	0.281	0.014	0.014	0.000				
AUX	0.617	0.267	0.000	0.000					
RURAL	0.617	0.267	0.000						
PSYCH	0.350	0.000							
ICU	0.000								
R	9	8	7	6	5	4	3	2	
$q_{.95(r,143)} \times M$	1.27	1.24	1.21	1.17	1.12	1.05	0.96	0.80	

M(multiplier) = 0.28929

* indicates significance at the 0.05 level

- ☐ to a very little extent ☐ to a great extent
☐ to a little extent ☐ to a very great
☐ to some extent ☐ extent
5. To what extent are nursing staff meetings held regularly to coordinate the work within your unit?
- ☐ to a very little extent ☐ to a great extent
☐ to a little extent ☐ to a very great
☐ to some extent ☐ extent
6. To what extent is your staff brought together, in an ad hoc manner, for problem-solving on particular issues relating to the work within your unit?
- ☐ to a very little extent ☐ to a great extent
☐ to a little extent ☐ to a very great
☐ to some extent ☐ extent
7. How frequently are routine nursing procedures used on your unit?
- ☐ very frequently ☐ infrequently
☐ frequently ☐ very infrequently
☐ sometimes
8. For what percentage of the patients on your unit can standing orders be used?
- ☐ 0-5% ☐ 6-25% ☐ 26-50% ☐ 51-75% ☐ 76-100%
9. How frequently is one Registered Nurse assigned to give medications to all patients on your unit?
- ☐ very frequently, ☐ infrequently
☐ frequently ☐ very infrequently
☐ sometimes
10. How frequently is one or two nurses assigned to give all baths to all patients on your unit?
- ☐ very frequently ☐ infrequently
☐ frequently ☐ very infrequently
☐ sometimes
11. In general, would you describe the type of patient assignment on your unit as:
- ☐ team nursing ☐ no regular type of
☐ functional nursing ☐ assignment.
☐ primary nursing ☐ other, specify _____
☐ (case assignment)

Item 11 was recoded to reflect an increasing degree of standardization of patient assignment. Standardization was thought to increase as assignment type moved from no regular type of assignment to primary nursing to team nursing to unit assignment to functional nursing assignment. It is the recoded item that was used in analysis and that is presented here.

There are no differences between units with respect to the Headnurse acting in a coordinating role. This is not surprising since it is to be expected that the duties of a supervisory position would include coordination activities.

The level of use of regular nursing staff meetings for the purpose of coordinating work is consistent across the units with the only significant difference appearing at the extremes of the ordering shown in Figure 6. Intensive care units may be low because the staff is unable to leave the unit due to the serious disorders the patients on these units suffer.

Problem solving by ad hoc means is uniform in all nursing units. Although the commonality exists, the data shows that this technique is used only "to some extent". The result is not surprising as ad hoc problem solving is a relatively widespread phenomenon in most groups.

The use of routine nursing procedures is also uniform across the nursing units. The responses indicate, on average, a frequent use of routine procedures. The absence of differences is consistent with the uniformity of role restriction found in analyzing the data relating to the structural variable of role specificity.

Several subsets exist in terms of use of standing orders as a mechanism of coordination but they exhibit considerable overlap and it is between the extremes of the ordering that differences are best represented. For example, obstetric units, where treatment is largely routine score highly, but medical units, where the variety of patient disorders is greater and where more frequent changes in patient condition probably occur, make less use of standing orders.

Psychiatry differs from paediatrics in terms of one registered nurse giving all medications. Paediatrics scores low on this item (i.e. more than one registered nurse commonly administers medications). This may be due to a greater variety and a greater volume of medications to be given on paediatric units than would be the case on psychiatric units.

There is a difference between intensive care and paediatric units as regards the practise of having one or two registered nurses give baths to patients. Intensive care units score high on this item and that may be due to the fact that patients there will generally be immobile and quite ill and bathing these patients will require assistance. Paediatric units, aside from being larger in terms of number of patients, also employ more non-professional staff and they would thus be expected to have a lower score on this item.

Patient assignment, as an indicator of mechanisms of coordination, shows no significant differences between units. Team nursing is the technique used in most units according to the

responses. The uniformity of this approach may be due to its usefulness and/or to hospital policy that directs each unit to use it.

This completes the examination of the structure and process variables in terms of the variety that exists across the 9 types of nursing units. Table 25 provides a summary of the major findings. The next portion of the presentation of the data is an examination of the relationships between the structural and process variables.

TABLE 25
SUMMARY OF RESULTS

CONCEPT	VARIABLE	SIGNIFICANT DIFFERENCES BETWEEN *
STRUCTURE	Role Specificity	
	1. Bureaucratic Structure	AUX, OBS and ICU
	2. Role Restriction	REHAB, OBS and PSYCH,
	3. Spatial Constraint	ICU and OBS, AUX
	Decentralization of Decision-Making	
	1. Relative to Headnurse	ICU and OBS, REHAB, AUX
	2. Relative to Nursing Care	none
	3. Relative to Physicians	none
	Horizontal Complexity	
	1. Complexity of Nursing Staff	REHAB and ICU
	2. Complexity of Administration	none
	Vertical Complexity	
PROCESS	1. Levels of Leadership	none
	Formalization of Evaluation	
	1. Written Evaluation	none
	2. Evaluation Forms	none
	3. Discussion of Evaluation	none
	4. Areas of Performance	none
	5. Frequency of Evaluation	PSYCH and AUX, REHAB, OBS, PAEDS, RURAL
	Leadership	
	1. Task Leadership	none
	2. Socio-emotional Leadership	none
	Control	
	1. Informal Task Control	none
	2. Formal Task Control	none
	3. Medication Errors	none
	4. Patient Accidents	none
	5. Nursing Notes	ICU, SURG and MED, PSYCH, AUX, REHAB
	6. Kardex	ICU, SURG, PAEDS, OBS, RURAL MED and AUX
	7. Narcotic Check	MED, PAEDS, SURG and ICU
	8. Nursing Audit	none

CONCEPT	VARIABLE	SIGNIFICANT DIFFERENCES BETWEEN *
	Communication	
	1. With Headnurse	none
	2. With Physicians	none
	3. Frequency with Headnurse	none
	4. With Colleagues	none
	Coordination	
	1. Headnurse as coordinator	none
	2. Regular meetings	RURAL and ICU
	3. Ad-hoc problem solving	none
	4. Routine procedures	none
	5. Use of standing orders	OBS and ICU, PSYCH, PAEDS, MED
	6. Medications by one R.N.	PSYCH and ICU, PAEDS
	7. Baths by one or two R.N.'s	ICU and SURG, PAEDS
	8. Patient assignment	none

- * The column headed SIGNIFICANT DIFFERENCES BETWEEN refers to statistically significant differences (or the absence of them) between mean item or mean factor scores as determined by the Newman-Keuls procedure at a level of significance of 0.05. Where means were found to be equivalent across the 9 types of units, the word "none" indicates this. Where differences in means were found the units between which differences exist are named. Those units with higher scores always appear to the left. Where units are separated by a comma, they have statistically equivalent scores.

RELATIONSHIP BETWEEN STRUCTURE AND PROCESS

In order to determine if there were any relationships between structure and process, the Pearson correlation coefficients for the structure and process factor and item scores were calculated and the results are shown in Table 26. Only those correlations that correspond to rejection of the null hypothesis of no linear association at the 0.05 level are shown.

The results indicate that increased bureaucratic structure is positively related to frequency of narcotic check and the use of regular coordination meetings but is negatively related to the formality with which medication errors are reported as one item of control. Role restriction is positively related to socio-emotional leadership, communication with colleagues and the use of routine procedures. Spatial constraint is positively related to the formality with which patient accidents are reported, the frequency with which nursing notes are updated, the kind and adequacy of communications between nursing staff and physicians but is related negatively with the percentage of time standing orders may be used.

These correlations show that there is a relationship between the structural variable of role specificity and the processes of leadership, control, coordination and communication. The bivariate correlations, although significant at the 0.05 level, are low as they range in absolute values from 0.13 to 0.18.

The structural variable of decentralized decision making shows significant bivariate correlations as explained below.

TABLE 26
STRUCTURE AND PROCESS
PEARSON PRODUCT MOMENT CORRELATIONS*
STRUCTURE
ROLE SPECIFICITY

PROCESS	Bureaucratic Structure	Role Restriction	Spatial Constraint
Leadership			
Socio-emotional	0.16		
Control			
Med. errors	-0.14		
Accidents			0.17
Notes			0.20
Narcotic	0.18		
Communication			
with M.D.'s			0.18
with Colleagues	0.13		
Coordination			
Regular meetings	0.18		
Routine procedures		0.15	
Standing orders			-0.18

* Blank cells or missing Process variables indicate an absence of significance at the 0.05 level.

TABLE 26
 STRUCTURE AND PROCESS
 PEARSON PRODUCT MOMENT CORRELATIONS*
 STRUCTURE
 DECENTRALIZATION OF DECISION MAKING

PROCESS	Decentralization to Headnurse	Relative to Care	Centralization Relative to M.D.'s
Control			
Accidents	0.15		
Notes		-0.15	
Kardex	0.14		
Coordination			
Headnurse		-0.16	0.19
Regular Meetings		0.16	
Routine procedures		-0.17	
Standing orders		-0.26	
Baths		0.18	
Patient assignment	-0.18		

* Blank cells or missing Process variables indicate a lack of significance at the 0.05 level.

TABLE 26

STRUCTURE AND PROCESS

PEARSON PRODUCT MOMENT CORRELATIONS*

STRUCTURE

FORMALNESS OF EVALUATION

PROCESS	AREAS OF PERFORMANCE EVALUATION	FREQUENCY OF EVALUATION
Leadership		
Socio-emotional		-0.18
Control		
Accidents	0.25	
Notes	0.24	
Coordination		
Baths	-0.17	
Patient Assignment	-0.26	

* Blank cells or missing Process variables indicate an absence of significance at the 0.05 level.

TABLE 26
 STRUCTURE AND PROCESS
 PEARSON PRODUCT MOMENT CORRELATIONS*
 STRUCTURE
 DEGREE OF COMPLEXITY

PROCESS	Complexity of Staff	Complexity of Administration	Levels of Leadership
Control			
Med. Errors			0.20
Accidents	-0.19	0.14	
Notes	-0.16	0.14	
Kardex		0.27	
Narcotic	0.17		
Coordination			
Regular Meetings	0.20		
Standing orders		-0.16	
Meds. by 1 R.N.		-0.27	-0.21
Baths		-0.24	-0.14
Patient Assignment		-0.16	

* Blank cells or missing Process variables indicates an absence of significance at the 0.05 level.

Decentralization of decision-making with respect to the Headnurse is positively correlated with the formality of reporting patient accidents and the frequency with which care plans are updated and negatively with patient assignment. Decentralization is thus accompanied by increased control.

Decentralization of decision-making with respect to nursing care is negatively correlated with the frequency with which nursing notes are updated. This relationship is consistent with a reduced need to communicate upwards. An increase in authority of the nursing staff with respect to nursing care decisions is positively related to increased use of regular coordination meetings and the frequency with which one or two registered nurses give baths to patients. It is negatively related to the degree to which the Headnurse acts as a coordinator, the use of routine procedures and standing orders. Evidently the need for coordination is reduced in situations where authority can be delegated.

Centralization of decision making with respect to physicians is positively correlated with the degree to which the Headnurse acts as a coordinator. Direction from physicians is evidently channeled through the Headnurse position.

The locus of authority to make decisions is thus related to control and coordination. It appears that downward delegation occurs where there is less need for control and coordination which is not unexpected.

The degree of formalization of evaluation which consists of areas of performance evaluation and the frequency of evaluation

displays only a few significant bivariate correlations. The number of performance areas routinely evaluated is positively correlated with the formality associated with reporting patient accidents and the frequency with which nursing notes are updated. It is however negatively related to the frequency with which one or two registered nurses give baths to patients and the degree of standardization of patient assignment. Frequency of evaluation is negatively associated with socio-emotional leadership which may reflect an inconsistency between being able to provide socio-emotional support and to routinely criticize even though the criticism may be constructive.

The structural variable of the formality of performance evaluation is thus associated with leadership, control and coordination.

The complexity of nursing staff, measured in terms of the number of types of positions displays a negative correlation with the degree of formality of reporting patient accidents and the frequency of updating nursing notes. Positive correlations exist for the frequency with which narcotics are checked and for the frequency with which regular coordination meetings are held.

Complexity of the administrative component, another measure of horizontal complexity, is positively related to three control items which are the formality of reporting patient accidents, the frequency of updating nursing notes and the frequency with which nursing care plans are updated. It is negatively related to the use of standing orders, the frequency with which one R.N. gives

medications and the frequency of one or two registered nurses giving baths to patients.

Horizontal complexity as a structural variable is thus associated with mechanisms of control and coordination as variables of process.

Vertical complexity, measured in terms of the number of levels of leadership is positively correlated with the formality with which medication errors are reported and negatively correlated with the frequency with which medications are given by one registered nurse, the frequency with which one or two registered nurses give baths to patients and the degree of standardization of patient assignment. Vertical complexity as a structural variable is thus associated with processes of control and coordination.

Table 27 is a summary of the relationships shown by the bivariate correlation coefficients. It should be noted that the correlation coefficients which are significant at the 0.05 level are low and the percentage of variance in one variable explained by another ranges from 1.7% to 7.3%.

Canonical correlation was also used to seek relationships between structure and process. The significance of the correlation between the canonical variates thus produced was tested at the 0.05 level. Two canonical variates were produced for the sets of structure and process variables and these results are shown in Table 28.

The first canonical variates show that 56% of the variance in the subset of structural variables consisting of role specificity,

TABLE 27
RELATIONSHIPS BETWEEN
STRUCTURE AND PROCESS*

STRUCTURE	PROCESS
Role Specificity	Leadership, Control, Communication, Coordination
Decentralization of Decision-making	Control, Coordination
Formality of Evaluation	Leadership, Control, Coordination
Horizontal Complexity	Control, Coordination
Vertical Complexity	Control, Coordination

* This table shows the variables of structure and process that had correlations significant at the 0.05 level.

decentralization of decisions making, vertical complexity, horizontal complexity and formality of evaluation is explained by the subset of process variables consisting of control and coordination. The subsets were selected by concentrating on variables having coefficients of absolute value 0.20 or greater.

The second canonical variates show that only 37% of the variance in the linear combination of structural variables is explained by the linear combination of process variables.

The first canonical variates demonstrate, as did the bivariate correlations, that the variables comprising structure are most closely associated with the process mechanisms of control and coordination.

TABLE 28
CANONICAL CORRELATIONS
STRUCTURE AND PROCESS

NUMBER 1	EIGENVALUE	CANONICAL CORRELATION	CHI-SQUARE	DF	P
	0.56	0.75	347.55	253	0.0
STRUCTURE		COEFFICIENT			
Role Specificity					
Bureaucratic			0.21		
Role Restriction			0.12		
Spatial Constraint			-0.10		
Decentralization of Decision-making					
Relative to Headnurses			-0.01		
Relative to Nursing Care			0.37		
Relative to Physicians			-0.17		
Horizontal Complexity					
Complexity of Nursing Staff			0.27		
Complexity of Administration			-0.62		
Vertical Complexity					
Level of leadership			-0.27		
Formality of Evaluation					
Areas of Evaluation			-0.48		
Frequency of Evaluation			0.16		
PROCESS		COEFFICIENT			
Leadership					
Task Leadership			-0.09		
Socio-emotional Leadership			-0.07		
Control					
Informal task control			0.18		
Formal task control			-0.24		
Reporting medication errors			-0.34		

Reporting patient accidents	0.12
Updating nursing notes	-0.39
Updating care plans	-0.39
Frequency of narcotic check	0.25
Communication	
Adequacy with Headnurse	-0.05
Adequacy with Physicians	0.17
Frequency with Headnurse	-0.12
Frequency with Colleagues	0.08
Coordination	
Headnurse as coordinator	0.05
Regular coordination meetings	0.17
Ad-hoc problem solving	0.21
Use of routine procedures	-0.11
Use of standing orders	0.21
Medication by 1 R.N.	0.17
Baths by 1 or 2 R.N.'s	0.25
Patient assignment	0.33



CHAPTER IV

LIMITATIONS AND CONCLUSIONS

In this chapter, the limitations of the research are discussed and conclusions arising from the results of analysis are presented. In addition, some considerations for further research are noted.

Limitations

The constituents of the concept of process in organizations are not clear in the literature and further, whatever linkages may exist between structure and process have not, in the past, been the topic of much theoretical or empirical work. Therefore caution must be used in considering that the variables used in this research to measure process have the solid theoretical base that exists generally for the concept of structure.

A second consideration is that this research is based on nursing units in hospitals which may be unique among the many types of organizations that exist in our society. Thus any generalizations must be made conservatively.

Although the nine types of nursing units were felt to exist commonly and to be relatively distinct, different results may be found with a different or modified set of unit types. And because structure and process were operationalized at the nursing unit level, the measures of these concepts and the results may not be

appropriate for use in other types of organizations.

There were 157 nursing units of the 9 different types included in the study. There were not an equal number of each type and further, the units in the study were not selected randomly. The generalizability of the findings is thus limited to the population of the nine unit types. As well, the hospitals participating in the study were all in Alberta, Canada and as such may be subject to external forces which may be different from those encountered by hospitals in other areas. Such forces may or may not influence the structure and process within the units.

To a large extent, the measurements were based on perceptions of individual nurses and nursing administrators. Although perceptions are important, the problem comes in attempting to measure them. The potential for error exists especially where the survey instruments invite criticism of one level of staff by another, the result of which may be socially desirable responses.

Validity of the measures of process is open to some question since there is little previous theory or research to establish a standard. In effect, no solid evidence of construct validity has been demonstrated. With respect to structure, validity does not present the same problem because of the emphasis that has been placed on this concept in past studies and upon which this study was able to draw.

Conclusions

The most significant result of this research is that there is very little variety in either structure or process across the

nursing units. Some statistically significant differences were found but, when they did occur, they were normally found between the extremes of the ordering on the various scales seeking to measure structure and process. This result is interesting because work by authors such as Perrow (1970), Van de Ven (1975) and Pondy (1969) lead to the expectation that if it can be assumed that technology varies then structure and process should also vary. That variety in technology exists in nursing units was documented by Overton, Schneck and Hazlett (1977) in a study of seven types of nursing units in eight hospitals in Alberta, Canada.

In the case of the structural data presented in the previous chapter, seven of the fifteen factor or item scores subjected to analysis of variance procedures showed significant differences across nursing units. However, where differences were detected, they existed in the majority of cases between the two units that represented the extremes of the measurement scales. In general, the results were characterized by large groupings of nursing units with no statistically significant differences. The process factor and item scores showed even more homogeneity. Of the twenty-two measures of process, only seven showed significant differences across units and again the results were dominated by groups of units with statistically equivalent scores. Structure and process do not vary as might be expected if in fact technology varies across the units.

Process was expected to exist in a variety that would support different structures. The results show however that the

relationship between structure and process, at least for nursing units, is constant. It is important to recognize that this finding does not deny a relationship between structure and process. It could be for example, that process is a function of structure and that the process model that exists on nursing units is one that provides congruence with the structural model that is constant across units. Research in other organizations may show different structures and different processes to accompany them. Given the homogeneity of structure and process across the nursing units, the problem becomes one of reconciling the continually recurring patterns. If, for example technology has not produced variety, other factors must have produced uniformity. In the first chapter it was noted that several factors could result in uniformity of structure and process. In view of the findings of the third chapter it is possible that these have been major elements in shaping of structure and process in nursing units.

During their training and working careers, nursing staff are subject to a process of socialization in which care and cure of patients and their disorders is of paramount concern. However obvious this may be, it is nevertheless important. Therefore no matter what the nature of the physical or mental ailment, the ideology of the medical profession will focus attention on these ailments and the technology used to treat them. In addition since training (and to a lesser extent, work experience) takes place on a variety of nursing units, it is not unreasonable to expect that concern for the patient subsumes concern for the unit and its

structure and process. Socialization is implemented in many situations in order to create common (and acceptable) attitudes and behaviour. The commonality of attitudes and behaviour generated by the socialization of nursing staff may then be reflected in the ways in which they organize and the mechanisms they use to accomplish their objectives.

A second factor that no doubt tends to produce conformity within hospitals is that they are involved in making decisions that impact both the quality and quantity of life. In many circumstances, informality in the decision-making process could have very serious consequences. Although a formal or routinized process does not guarantee correct decisions, standardization will tend to eliminate uncertainty to the extent that all known factors are taken into account. In effect, hospitals and thus the units and staff within them, cannot afford to make errors. The consequences are simply too costly and the tendency will be to institute checks by means of standard procedures to eliminate, to the greatest extent possible, the chances of mistakes. It could well be that rather more strict procedures are required for particular units. But having established a standard procedure for units where errors are serious, it is quite easy and also very convenient to use the same process for units when the consequence of error may be less costly. A tool that has multiple uses is almost always to be preferred to one that is unique and of limited application.

The influence of the physicians may also tend to generate common structure and process. This influence is seen through the technology that the physicians bring to the units. Although they normally do not have direct authority over nursing staff, since most physicians are not employees of the hospital, it would seem that they have the potential to exercise power at least indirectly. As Hydebrand (1973) points out, "authority based on rank and expertise provides hierarchical coordination." The physicians are normally the most intensively educated and specialized group within the medical profession and this alone may provide them with considerable influence but perhaps only with regard to medical treatment as opposed to nursing care, decisions about which may be made by the nursing staff.

The activities of the nursing staff will certainly be influenced by the physicians and because the physician-nurse relationship exists in all units, there may be a tendency for common structure and process to evolve.

The requirement for rational administration may also tend to force different work units to adopt (or be forced to adopt) similar structure and process. Administrative groups within a hospital must deal with both internal and external agencies. Internally they deal with every nursing unit each of which can bring pressure to bear on matters that may transcend unit boundaries. Working conditions, for example, may be a subject to which individual nurses and units address themselves. Rather than create or allow unique structures or process and risk the possibility of criticism

for the real or apparent lack of equality, the hospital administration may tend to favor commonality across units. Externally the administration must deal with and accommodate their sources of legitimacy and funding. Accreditation may be easier to achieve where common structures and processes are seen to be in place. Funding agencies are concerned with the way in which monies are disbursed. Common structure facilitates the division of funds and the development of mechanisms to report financial details. It may well be that for ease of administration, nursing units are established with a particular structure and process model to meet, insofar as possible, the needs of administration.

Another possibility, suggested by Heydebrand (1973) is that the creation of units based on specialized functions leads quite naturally to interdependence between them. This requires coordination and integrative mechanisms such as delegation and heirarchization. Although each unit may have a unique subset of other units with which they deal, uncertainty is reduced if all units adopt similar structures and processes.

A further issue is that widely held societal values may tend to encourage conformity. Structure is common in an extremely wide variety of organizations albeit to varying degrees. People also develop processes that aid them in their work and perhaps within an organization dedicated to a basic objective it is not surprising to find common structure and process in its constituent parts each of which has the same basic goal and which are staffed with individuals who have undergone similar training and who have

similar skills.

Therefore it is suggested that there are several factors forcing common structure and process. Even though these have not been measured and analyzed in this work they are offered as plausible hypotheses and although speculative in nature, it is suggested that they are worthy of future research.

The first of these forces is the socialization of nursing staff during their training and the focus in all units on the medical ideology which makes care and cure of patients the major goal.

The second factor is the requirement to standardize in order to avert or at least reduce errors that could have serious consequences in terms of both quality and quantity of patient life.

The third element is the influence of the physicians who bring their technologies to the units and who direct the medical treatment of patient disorders.

A fourth element is the impact of the administrative requirements of the hospital which can be accomplished with more certainty to the extent that structure and process are standardized.

The fifth factor is the need for coordination and integrative mechanisms where specialized functions, which lead to interdependence, exist.

And lastly, the influence of society, which in itself exhibits much structure, may tend to encourage conformity and uniformity in nursing units.

Some Implications for Further Research

It would seem useful to replicate this study with an increased number of types of nursing units and with a larger sample of randomly selected units of each type. It may be appropriate to include units in hospitals that are privately owned or receive their funding from other than public sources.

Further research should be undertaken to determine if as Heydebrand (1973) notes "modern hospitals have become organizational models in their own right." Comparative analysis between nursing units and work units of a different type may be fruitful.

Although perhaps difficult, more objective measures of structure and process should be sought because of the difficulty associated with attempting to measure perceptions.

It would also be interesting to include in future investigations, nursing units that have been established as a result of new technology. If such units could be examined relatively early in their existence it might be possible to trace their movement towards a structure and a set of processes that is common throughout the organization in which they operate if indeed that is the direction in which they tend to go.

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APPENDIX A
NURSING STAFF QUESTIONNAIRE

QUESTIONNAIRE TO BE COMPLETED BY NURSING STAFF

University of Alberta
Department of Organizational Analysis and the
Division of Health Services Administration

Spring, 1977

This is a study about nurses. The main purpose of the study is to learn how different types of nursing units operate and what makes a hospital a good place in which to work.

Your hospital is one of many similar hospitals in Alberta which has been selected to participate in the present study. In each hospital, we need the cooperation of many people like yourself because the success of the study will depend on the information that you give us.

To find out how you think and feel about your unit and the people who work in it, we would like you to fill out this questionnaire. Your individual answers are completely confidential and will remain anonymous - do not sign your name to the questionnaire.

The final value of our study will depend upon the frankness and care with which you answer the questions. There are no right or wrong answers. The main idea is for you to answer the questions the way you feel - the way things seem to you personally. Your answers will be combined with those of many other nurses and the results of the research will be available to you when the research is completed.

Thank you very much for your cooperation.

Peggy Overton, R.N., M.H.S.A.
Rodney shneck, Ph.D
Co-Investigators

A. SOME GENERAL QUESTIONS ABOUT YOUR WORK

Beside each of the statements listed below, please indicate by checking () the answer which most closely represents your opinion. In all questions you are asked to estimate a percentage.

	<u>percent %</u>				
	<u>0-5</u>	<u>6-25</u>	<u>26-50</u>	<u>51-75</u>	<u>76-100</u>
1. In your estimation, what percentage of patients on your unit needs nursing observation more often than once every half hour?	()	()	()	()	()
2. What percentage of the patients would you say have similar health problems (or diagnosis)?	()	()	()	()	()
3. For some patients more than others it is important to know complete details of their previous health history. For what percentage of the patients on your unit is it critical that the nurse know a detailed history from birth to present time?	()	()	()	()	()
4. What percentage of the patients on your unit has complex problems that are not well understood?	()	()	()	()	()
5. What percentage of the nurses' work involves performing technical procedures and special tests?	()	()	()	()	()
6. What percentage of patients require the use of technical equipment (i.e., suction, cardiac monitors, respirators, etc.)?	()	()	()	()	()
7. What percentage of the patients on your unit on an average day require an intravenous infusion?	()	()	()	()	()

8. On some units there is a greater pressure to give nursing care quickly because of patients' critical conditions. What percentage of the time is there a greater time pressure on your unit? () () () () ()
9. What percentage of the time does improvement in patients conditions really have to depend upon the skillful work and initiative of nursing personnel? () () () () ()
10. What percentage of your work requires the analysis of complex problems? () () () () ()
11. What percentage of the patients have written goals for their individualized care in the Kardex (nursing care plan)? () () () () ()
12. What percentage of the nursing care on your unit is directed at meeting patients' socio-psychological needs (as opposed to physical needs)? () () () () ()
13. What percentage of the nursing care given relies upon nurses' intuition rather than on set procedures or routines? () () () () ()
14. What percentage of the nursing care procedures are similar for most of the patients on your unit? () () () () ()
15. What percentage of the decisions made by nurses during their work are repetitive from one day to the next? () () () () ()
16. What percentage of new nurses starting work on your unit would find the nursing care specialty difficult to learn? () () () () ()

- | | | | | | |
|--|------------|-------------|--------------|--------------|---------------|
| | <u>0-5</u> | <u>6-25</u> | <u>26-50</u> | <u>51-75</u> | <u>76-100</u> |
|--|------------|-------------|--------------|--------------|---------------|
17. What percentage of your work changes in direct response to changes in patients' conditions or moods?
- | | | | | | |
|--|------------|-------------|--------------|--------------|---------------|
| | <u>0-5</u> | <u>6-25</u> | <u>26-50</u> | <u>51-75</u> | <u>76-100</u> |
|--|------------|-------------|--------------|--------------|---------------|
18. What percentage of the time are you highly dependent upon other nurses on your unit for help and/or are they dependent upon you for help?
- | | | | | | |
|--|------------|-------------|--------------|--------------|---------------|
| | <u>0-5</u> | <u>6-25</u> | <u>26-50</u> | <u>51-75</u> | <u>76-100</u> |
|--|------------|-------------|--------------|--------------|---------------|
19. In your estimation, what percentage of the decisions made by the nursing staff of your unit are made independently from physicians?
- | | | | | | |
|--|------------|-------------|--------------|--------------|---------------|
| | <u>0-5</u> | <u>6-25</u> | <u>26-50</u> | <u>51-75</u> | <u>76-100</u> |
|--|------------|-------------|--------------|--------------|---------------|

B. ABOUT HOW YOU WORK

Beside each of the statements listed below, please indicate whether you strongly agree, agree, disagree, or strongly disagree.

- | | | | | |
|--|---------------------------------|--------------|-----------------|------------------------------------|
| | <u>Strongly</u>
<u>Agree</u> | <u>Agree</u> | <u>Disagree</u> | <u>Strongly</u>
<u>Disagree</u> |
|--|---------------------------------|--------------|-----------------|------------------------------------|
20. Nurses on your unit have frequent verbal or written communication with medical staff. () () () ()
21. On this unit, there are many emergencies when immediate nursing action must be taken in response to changes in patients' conditions. () () () ()
22. Nurses are allowed to leave the nursing station without informing other nurses they are leaving. () () () ()
23. On this unit, nurses have a great deal of freedom and few rules and procedures to follow. () () () ()

	<u>Strongly Agree</u>	<u>Agree</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
24. Even small matters about patients have to be referred to a physician for a final decision.	()	()	()	()
25. Nurses on this unit have a great deal of freedom in deciding nursing interventions for patients without asking physicians.	()	()	()	()
26. Most nurses on your unit follow their own ideas in implementing nursing care	()	()	()	()
27. There can be little nursing action taken on this unit until a physician writes	()	()	()	()
28. No matter what situation arises on this unit, we have procedures to follow in dealing with it	()	()	()	()
29. If the nursing staff want to make their own decisions about nursing care they are quickly discouraged here	()	()	()	()
30. On this unit, there are clear lines of reporting and authority	()	()	()	()
31. There are very precise definitions of nurses' duties on this unit	()	()	()	()
32. Responsibilities and authority are emphasized on this unit	()	()	()	()
33. Nurses frequently participate in decisions regarding what nursing care will be given to individual patients on this unit	()	()	()	()

	<u>Strongly Agree</u>	<u>Agree</u>	<u>Disagree</u>	<u>Strongly Disagree</u>
34. Nurses frequently participate in decisions to change or adopt new nursing techniques on this unit	()	()	()	()
35. There can be little action taken on this unit until the Headnurse approves the decision	()	()	()	()
36. Even small matters about patients have to be referred to the Headnurse for final decision	()	()	()	()
37. Nurses have to ask the Headnurse before doing almost anything	()	()	()	()

C. ABOUT WORKING WITH YOUR HEADNURSE

38. To what extent is your Headnurse willing to listen to your problems? (Check one)

☐ to a very little extent
☐ to a little extent
☐ to some extent

☐ to a great extent
☐ to a very great extent

39. To what extent does your Headnurse have a sincere and friendly interest in the personal welfare and problems of your nursing group? (Check one)

☐ to a very little extent
☐ to a little extent
☐ to some extent

☐ to a great extent
☐ to a very great extent

40. How much does your Headnurse encourage people to maintain high standards of nursing care? (Check one)

☐ to a very little extent
☐ to a little extent
☐ to some extent

☐ to a great extent
☐ to a very great extent

41. To what extent does your Headnurse offer new ideas for solving job-related problems? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

42. To what extent does your Headnurse encourage people who work for her to exchange opinions and ideas? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

43. How well does your Headnurse handle the technical side of her job - for example, general expertise, knowledge of job, technical skills needed, etc.? (Check one)

☐ extremely well	☐ not too well
☐ very well	☐ not well at all
☐ fairly well	

44. To what extent do you feel you personally can influence the activities and decisions of your Headnurse on matters that are of concern to you? (Check one)

☐ to a great extent	☐ to some extent
☐ to a considerable extent	☐ to no extent
☐ to a moderate extent	

45. How frequently is work time lost because your Headnurse fails to do the proper planning and scheduling? (Check one)

☐ quite frequently	☐ almost never
☐ frequently	☐ never
☐ occasionally	

46. How much confidence and trust do you have in your Headnurse? (Check one)

☐ none	☐ a great deal
☐ not very much	☐ complete confidence
☐ a fair amount	☐ and trust

D. ABOUT WORKING WITH EACH OTHER

47. How friendly and easy to approach are the nurse on your unit? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

48. To what extent do nurses on your unit encourage high standards of nursing care? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

49. To what extent do nurses on your unit provide the help you need so you can plan, organize, and schedule work ahead of time? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

50. To what extent do nurses on your unit offer each other new ideas for solving job-related problems? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

51. How much do nurses on your unit encourage each other to work as a team? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

52. To what extent do nurses on your unit exchange opinions and ideas? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

53. To what extent does your unit plan together and coordinate its efforts? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

54. To what extent is information about important events and situations shared within your nursing unit? (Check one)

☐ to a very little extent	☐ to a great extent
--	--

☐ to a little extent ☐ to a very great extent
☐ to some extent

55. To what extent do you have confidence and trust in the nurses on your unit? (Check one)

☐ to a very little extent ☐ to a great extent
☐ to a little extent ☐ to a very great extent
☐ to some extent

56. To what extent do the nurses in your unit work independently from other nurses on the unit to accomplish their own assigned tasks? (Check one)

☐ to a very little extent ☐ to a great extent
☐ to a little extent ☐ to a very great extent
☐ to some extent

E. ABOUT COMMUNICATION

57. In general, how do you feel about the kind of communication which you receive from your Headnurse? (Check one)

☐ completely adequate ☐ rather inadequate
☐ very adequate ☐ inadequate
☐ fairly adequate

58. In general, how do you feel about the kind of information and communication which you receive from attending physicians in your unit? (Check one)

☐ completely adequate ☐ rather inadequate
☐ very adequate ☐ inadequate
☐ fairly adequate

59. How often do you usually talk with your Headnurse or immediate superior about each of the following things? (Check one for each item)

About	Several
once a week or less	times a shift or more
2 or 3 times a week	
Several times a week	
About once a day	

About ways in which patient care could be improved

() () () () ()

	About once a week or less	2 or 3 times a week	Several times a week	About once a day	Several times a shift or more
About ways in which nursing supervision could be improved	()	()	()	()	()
About work	()	()	()	()	()
About employee wages, hours, or benefits	()	()	()	()	()
About ways in which working relations with other depart- ments in the hospital could be improved	()	()	()	()	()
About ways in which satisfaction or morale among nursing personnel could be improved	()	()	()	()	()

60. How many times per day on average, do you confer informally (to discuss your day-to-day work problems) with other members of the nursing staff or your unit? (Check one)

_____ no times a day
_____ once a day

_____ 2 or 3 times a day
_____ many times a day

F. ABOUT SUPERVISION

Please indicate by checking () the answer which most closely represents your opinion.

	percent %				
	0-5	6-25	26-50	51-75	76-100
61. What percentage of your work is checked or reviewed by your Headnurse?	()	()	()	()	()
62. What percentage of your work is checked or reviewed by attending physicians?	()	()	()	()	()

	<u>percent %</u>				
	<u>0-5</u>	<u>6-25</u>	<u>26-50</u>	<u>51-75</u>	<u>76-100</u>
63. What percentage of your oversights or mistakes is likely to be called to your attention by your colleagues?	()	()	()	()	()
64. What percentage of your oversights or mistakes is likely to be called to your attention by attending physicians?	()	()	()	()	()
65. What percentage of the time is it necessary to follow strict nursing procedures?	()	()	()	()	()
66. What percentage of the time do you check to see if you are following the rules?	()	()	()	()	()

G. ABOUT STRESS

Listed below are a number of situations which may or may not be stressful on nursing units.

(a) Please indicate how stressful each situation is to you on your unit by checking the appropriate space.

(b) Please indicate how often the situation occurs on your unit by checking the appropriate space in the enclosed box.

67. How stressful is it if nursing staff have insufficient resources to do all the things that should be done?

☐ very little stress
☐ a little stress
☐ some stress
☐ quite a bit of stress
☐ very much stress

How often does this situation occur on your unit?

☐ never ☐ often
☐ rarely ☐ always
☐ sometimes

68. How stressful is it if nursing staff are unable to satisfy the conflicting demand of various people (e.g., patients, physicians, other paramedical staff, etc.?)

☐ very little stress
☐ a little stress

How often does this situation occur on your unit?

- | | | |
|--|------------------------------------|---------------------------------|
| ☐ some stress | ☐ never | ☐ often |
| ☐ quite a bit of stress | ☐ rarely | ☐ always |
| ☐ very much stress | ☐ sometimes | |

69. How stressful is it if the scope or responsibilities of your job are unclear?

- | | |
|--|---|
| ☐ very little stress | How often does this situation occur on your unit? |
| ☐ a little stress | |
| ☐ some stress | ☐ never ☐ often |
| ☐ quite a bit of stress | ☐ rarely ☐ always |
| ☐ very much stress | ☐ sometimes |

70. How stressful is it if there are personality conflicts among nursing staff members?

- | | |
|--|---|
| ☐ very little stress | How often does this situation occur on your unit? |
| ☐ a little stress | |
| ☐ some stress | ☐ never ☐ often |
| ☐ quite a bit of stress | ☐ rarely ☐ always |
| ☐ very much stress | ☐ sometimes |

71. How stressful is it if nursing staff are insecure in their nursing knowledge or skills?

- | | |
|--|---|
| ☐ very little stress | How often does this situation occur on your unit? |
| ☐ a little stress | |
| ☐ some stress | ☐ never ☐ often |
| ☐ quite a bit of stress | ☐ rarely ☐ always |
| ☐ very much stress | ☐ sometimes |

72. How stressful is it if physicians appear impatient with or hypercritical of nursing staff?

- | | |
|--|---|
| ☐ very little stress | How often does this situation occur on your unit? |
| ☐ a little stress | |
| ☐ some stress | ☐ never ☐ often |
| ☐ quite a bit of stress | ☐ rarely ☐ always |
| ☐ very much stress | ☐ sometimes |

73. How stressful is it if physicians are not available when they are wanted?

- | | |
|--|---|
| ☐ very little stress | How often does this situation occur on your unit? |
| ☐ a little stress | |
| ☐ some stress | ☐ never ☐ often |
| ☐ quite a bit of stress | ☐ rarely ☐ always |
| ☐ very much stress | ☐ sometimes |

74. How stressful is it if physicians do not communicate well with nursing staff?

☐ very little stress	How often does this situation
☐ a little stress	occur on your unit?
☐ some stress	☐ never ☐ often
☐ quite a bit of stress	☐ rarely ☐ always
☐ very much stress	☐ sometimes

75. How stressful is it if a patient's behavior or personality is troublesome?

☐ very little stress	How often does this situation
☐ a little stress	occur on your unit?
☐ some stress	☐ never ☐ often
☐ quite a bit of stress	☐ rarely ☐ always
☐ very much stress	☐ sometimes

76. How stressful is it if a patient is very ill and his prognosis is poor?

☐ very little stress	How often does this situation
☐ a little stress	occur on your unit?
☐ some stress	☐ never ☐ often
☐ quite a bit of stress	☐ rarely ☐ always
☐ very much stress	☐ sometimes

77. How stressful is it if nursing staff are caring for mostly elderly patients?

☐ very little stress	How often does this situation
☐ a little stress	occur on your unit?
☐ some stress	☐ never ☐ often
☐ quite a bit of stress	☐ rarely ☐ always
☐ very much stress	☐ sometimes

78. How stressful is it if nursing staff must perform painful but life-preserving treatments for patients?

☐ very little stress	How often does this situation
☐ a little stress	occur on your unit?
☐ some stress	☐ never ☐ often
☐ quite a bit of stress	☐ rarely ☐ always
☐ very much stress	☐ sometimes

79. How stressful is it if a patient's family is not informed of the condition of one of their members?

☐ very little stress	How often does this situation
☐ a little stress	occur on your unit?
☐ some stress	☐ never ☐ often
☐ quite a bit of stress	☐ rarely ☐ always
☐ very much stress	☐ sometimes

80. How stressful is it if a patient's family is upset or anxious about one of their members?

☐ very little stress	How often does this situation occur on your unit?
☐ a little stress	☐ never ☐ often
☐ some stress	☐ rarely ☐ always
☐ quite a bit of stress	☐ sometimes
☐ very much stress	

81. How stressful is it if scheduling and staffing are unpredictable or there are irregularities in the way time-off is scheduled?

☐ very little stress	How often does this situation occur on your unit?
☐ a little stress	☐ never ☐ often
☐ some stress	☐ rarely ☐ always
☐ quite a bit of stress	☐ sometimes
☐ very much stress	

82. How stressful is it if the workload is so consistently heavy that the nursing staff lack energy for leisure activities?

☐ very little stress	How often does this situation occur on your unit?
☐ a little stress	☐ never ☐ often
☐ some stress	☐ rarely ☐ always
☐ quite a bit of stress	☐ sometimes
☐ very much stress	

83. How stressful is it if the nursing staff are exposed repetitively to suffering, death and dying?

☐ very little stress	How often does this situation occur on your unit?
☐ a little stress	☐ never ☐ often
☐ some stress	☐ rarely ☐ always
☐ quite a bit of stress	☐ sometimes
☐ very much stress	

84. How stressful is it if the previous shift leave unfinished work that should have been handled during their shift?

☐ very little stress	How often does this situation occur on your unit?
☐ a little stress	☐ never ☐ often
☐ some stress	☐ rarely ☐ always
☐ quite a bit of stress	☐ sometimes
☐ very much stress	

85. How stressful is it if the nursing staff are frequently faced with crisis situations which are not considered normal work?

☐ very little stress	How often does this situation occur on your unit?
☐ a little stress	

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress	☐ sometimes	

86. How stressful is it if nursing staff are asked to relieve on other units of the same specialty?

☐ very little stress	How often does this situation
☐ a little stress	occur on your unit?
☐ some stress	☐ never ☐ often
☐ quite a bit of stress	☐ rarely ☐ always
☐ very much stress	☐ sometimes

87. How stressful is it if nursing staff are asked to relieve on other units of a different specialty?

☐ very little stress	How often does this situation
☐ a little stress	occur on your unit?
☐ some stress	☐ never ☐ often
☐ quite a bit of stress	☐ rarely ☐ always
☐ very much stress	☐ sometimes

H. ABOUT JOB SATISFACTION

Beside each of the statements listed below, please indicate whether you are strongly satisfied, satisfied, sometimes satisfied, dissatisfied, or very dissatisfied.

- | | Strongly
<u>Satisfied</u> | <u>Satisfied</u> | Sometimes Dis-
<u>Satisfied</u> | <u>satisfied</u> | Very
Dis-
<u>satisfied</u> |
|---|------------------------------|------------------|------------------------------------|------------------|----------------------------------|
| 88. How satisfied are you with your opportunity on the job to fully use your skills and abilities? | () | () | () | () | () |
| 89. Are you satisfied with the feeling of accomplishment you get from the work you are doing? | () | () | () | () | () |
| 90. Are you satisfied with the opportunity your job allows you to do important and worthwhile things? | () | () | () | () | () |

	<u>Strongly</u> <u>Satisfied</u>	<u>Satisfied</u>	<u>Sometimes Dis-</u> <u>Satisfied</u>	<u>satisfied</u>	<u>Very</u> <u>Dis-</u> <u>satisfied</u>
91. Overall, how satisfied are you with the kind of work you do?	()	()	()	()	()
92. How satisfied are you with your present Headnurse?	()	()	()	()	()
93. How satisfied are you with your fellow co-workers?	()	()	()	()	()
94. How satisfied are you with the types of patients you must deal with?	()	()	()	()	()
95. How satisfied are you with the doctors you normally work with?	()	()	()	()	()
96. How satisfied are you with your present salary?	()	()	()	()	()
97. How satisfied are you with the physical conditions of the work place?	()	()	()	()	()
98. Are you satisfied with your workload? ()		()	()	()	()

I. ABOUT YOURSELF

99. How long have you been working on this nursing unit?

_____ 6 months or less
 _____ 6 months to 1 year
 _____ 1 year to 3 years

_____ 3 years to 6 years
 _____ 6 years to 9 years
 _____ 9 years or more

100. How old are you?

_____ under 20 years
 _____ 20 to 29 years
 _____ 30 to 39 years

_____ 40 to 49 years
 _____ 50 years or more

101. What is your position? (Check one)

☐ Staff Nurse
☐ Nursing Aide
☐ Nursing Orderly
☐ Assistant Headnurse

☐ Team Leader
☐ Ward Aide
☐ Other specify _____

102. What is the major specialty of your unit? (Check one)

☐ medical
☐ surgical
☐ intensive care
☐ rehabilitation
☐ nursing home

☐ auxiliary
☐ paediatric
☐ psychiatric
☐ other: specify _____

103. What level of nursing education have you completed? (Check more than one if necessary)

☐ Master's degree
☐ Bachelor's degree

☐ C.N.A. Certificate
☐ Nursing Orderly
☐ Certificate
☐ Other: specify _____

☐ R.N. Diploma
☐ R.P.N. Diploma

Clinical post-graduate course: specialty _____

104. How many years of nursing experience have you had since completion of your basic nursing education program? (Check one)

☐ less than 1 year
☐ 1 to 3 years
☐ 3 to 6 years

☐ 6 to 9 years
☐ 9 years or more

THANK YOU VERY MUCH FOR YOUR COOPERATION.

APPENDIX B

HEADNURSE QUESTIONNAIRE

QUESTIONNAIRE TO BE COMPLETED BY HEADNURSES

University of Alberta
Department of Organizational Analysis and the
Division of Health Services Administration

Spring, 1977

This is a study about nurses. The main purpose of the study is to learn how different types of nursing units operate and what makes a hospital a good place in which to work.

Your hospital is one of many similar hospitals in Alberta which has been selected to participate in the present study. In each hospital, we need the cooperation of many people like yourself because the success of the study will depend on the information that you give us.

To find out how you think and feel about your unit and the people who work in it, we would like you to fill out this questionnaire. Your individual answers are completely confidential and will remain anonymous - do not sign your name to the questionnaire.

The final value of our study will depend upon the frankness and care with which you answer the questions. There are no right or wrong answers. The main idea is for you to answer the questions the way you feel - the way things seem to you personally. Your answers will be combined with those of many other nurses and the results of the research will be available to you when the research is completed.

Thank you very much for your cooperation.

Peggy Overton, R.N. M.H.S.A.
Rodney Schneck, Ph.D.
Co-Investigators

Code: _____

A. ABOUT STAFFING

Please answer the questions by checking where appropriate.

1. Which of the following categories of nursing positions are usually employed on your unit? (Check more than one if necessary)

☐ General duty nurse/staff nurse	☐ Ward Aide
☐ Psychiatric Nurse	☐ Volunteer
☐ Certified Nursing Aide	☐ Other, specify _____
☐ Nursing Orderly	

2. How many nursing units (including yours) is your supervisor responsible for? (Circle one)

1 2 3 4 5 6 7 8 9 10 more than 10

3. Which of the following categories of administrative/clerical assistants are employed for your unit? (check more than one if necessary)

☐ Unit Manager (responsible to Nursing)	☐ Unit Secretary/Clerk Night Shift
☐ Unit Manager (responsible to Administration)	☐ Unit Secretary/Clerk Weekends
☐ Unit Secretary/Clerk Day Shift	☐ Supply Technicians
☐ Unit Secretary/Clerk Evening Shift	☐ Pharmacy Aides
	☐ Other, specify _____

4. To what extent are you as Headnurse the coordinator of work within your unit? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

5. To what extent are nursing staff meetings held regularly to coordinate the work within your unit? (Check one)

☐ to a very little extent	☐ to a great extent
☐ to a little extent	☐ to a very great extent
☐ to some extent	

6. To what extent is your staff brought together, in an ad hoc manner, for problem-solving on particular issues relating to the work within your unit? (Check one)

_____ to a very little extent
_____ to a little extent
_____ to some extent

_____ to a great extent
_____ to a very great extent

7. How frequently are routine nursing procedures used on your unit?
(Check one)

_____ very frequently
_____ frequently
_____ sometimes

_____infrequently
_____very infrequently

8. For what percentage of the patients on your unit can standing orders be used? (Check one)

 0-5% 6-25% 26-50% 51-75% 76-100%

9. How frequently is one Registered Nurse assigned to give medication to all patients on your unit? (Check one)

_____ very frequently
_____ frequently
_____ sometimes

_____ infrequently
very infrequently

10. How frequently is one or two nurses assigned to give all baths to all patients on your unit? (Check one)

_____ very frequently
_____ frequently
_____ sometimes

_____ infrequently
_____ very infrequently

11. In general, would you describe the type of patient assignment on your unit as: (Check one)

_____ team nursing
_____ functional nursing
_____ primary nursing
(case assignment)

no regular type of assignment
other, specify

12. How many physicians have admitting privileges to your unit?
(Circle one)

1 2 3 4 5 6 7 8 9 10 more than 10

13. How many different specialties are included in your unit (e.g., medical, surgical, ENT, obstetrical, psychiatric)? (Circle one)

1 2 3 4 5 6 7 8 9 10 more than 10

14. When medical referrals are made, are they to a variety of specialists or, mainly to one type of specialist? (Check one)

_____ one type
_____ 2 or 3 types

4 types or more

15. Which of the following medical students receive clinical experience on your unit? (Check more than one if necessary)

☐ residents	☐ 3rd year medical students
☐ interns	☐ other, specify _____
☐ 4th year medical students	☐ none

16. What categories of nursing students receive clinical experience on your unit? (Check more than one if necessary)

☐ Diploma R.N., 3rd year	☐ R.P.N.; C.N.A.
☐ Diploma R.N., 2nd year	☐ Nursing Orderly
☐ Diploma R.N., 1st year	☐ Nursing Aide
☐ B.Sc., 4th year	☐ Master's in Nursing
☐ B.Sc., 3rd year	☐ R.N.s taking post-basic clinical courses (e.g., cardiovascular nursing)
☐ B.Sc., 2nd year	☐ other, specify _____
☐ B.Sc., 1st year	☐ none

17. Which of the following categories of other students receive clinical experience on your unit? (Check more than one if necessary)

☐ pharmacy students	☐ speech and audiology students
☐ physiotherapy students	☐ occupational therapy students
☐ respiratory therapy students	☐ clinical psychology students
☐ social worker	☐ dietary students
☐ laboratory technician students	☐ chaplainary students
☐ radiological technician students	☐ other, specify _____
	☐ none

18. Which of the following paramedical services are frequently used on your unit? (Check more than one if necessary)

☐ psychological services (e.g., testing)	☐ family therapy
☐ leisure activity services (e.g., hobby training, friendly visiting)	☐ occupational therapy
☐ social work services (e.g., counselling, financial assistance)	☐ audiology services
☐ vocational services (e.g. sheltered workshops)	☐ prosthetic services
☐ information about community services (e.g., home care services)	☐ dental services
☐ dietary counselling services	☐ other, specify _____
☐ physiotherapy	
☐ speech therapy	
☐ respiratory therapy	
☐ orthotic services	
☐ foot care services	
☐ chaplainary services	

19. Are X-ray services available in your hospital
_____ yes _____ no
20. Are laboratory (blood tests) services available in your hospital?
_____ yes _____ no
21. Relative to other nursing units is the visiting policy for patients, families and friends:
_____ more restricted than other units
_____ same as other units
_____ less restricted than other units
22. Which of the following services does your unit have regular contact with? (Check more than one if necessary)
_____ Operating Room _____ Admitting Department
_____ Emergency Department _____ None
_____ Ambulatory Care Department
23. Which of the following units or stations does your unit have regular contact with? (Check more than one if necessary)
_____ Surgical unit _____ Auxiliary unit
_____ Intensive Care unit _____ Nursing Home unit
_____ Obstetrical unit _____ Psychiatric unit
_____ Paediatric unit _____ Other, specify _____
_____ Rehabilitation unit _____ None
24. How frequently do phone calls go out from your nursing unit to physicians? (Check one)
_____ many times a shift _____ about once a week
_____ 4 or 5 times a shift _____ or less
_____ about once a day _____ about once a month
_____ _____ or less
25. How frequently are stat. calls made from your unit to physicians? (Check one)
_____ almost never _____ about once a day
_____ about once a month _____ several times a day
_____ about once a week
26. How frequently are cardiac arrest calls made from your unit? (Check one)
_____ almost never _____ about once a day
_____ about once a month _____ several times a day
_____ about once a week

27. How frequently are medical consultations (referrals) made from your unit to physicians not part of your attending staff? (Check one)

_____ almost never
_____ about once a month
_____ about once a week

_____ about once a day
_____ several times a day

28. What time(s) of day are physicians on your unit? (Check one)

_____ throughout the 24-hour period	_____ day and evening shift
_____ continuously	_____ intermittently
_____ throughout the 24-hour period	_____ day shift mainly, but
_____ intermittently	_____ continuously
_____ day and evening shift	_____ day shift mainly, but
_____ continuously	_____ intermittently

29. On average, how long does an attending physician stay on your unit when he visits? (Check one)

☐ less than 1/2 hour ☐ 2 to 4 hours
☐ 1/2 to 1 hour ☐ 4 to 8 hours
☐ 1 to 2 hours ☐ more than 8 hours

30. How frequently do attending physicians visit you unit? (Check one)

_____ infrequently _____ about once a day
_____ about once a month _____ several times a day
_____ about once a week

31. When a physician makes rounds who is usually with him? (Check more than one if necessary)

_____ He is usually alone	_____ Other Registered Nurses
_____ Headnurse and/or Team Coordinator	_____ Other Health Personnel

32. How do phsycicians leave their orders for patient care? (Check one)

_____ usually be writing only on the chart
_____ usually by talking to the nurse and the nurse writing the
orders
_____ usually by writing on the chart and discussing with the
nurse

33. When attending physicians visit your unit to whom do they most frequently speak (Check one)

☐ Headnurse or Tea Coordinator	☐ Ward Clerk or Secretary
☐ Any of the Staff Nurses	☐ All of the above equally

34. For which reasons do attending physicians most frequently visit your unit? (Check one)

☐ mainly for rounds	☐ rounds and for emergencies
☐ rounds and to give treatments	☐ rounds, emergencies and treatments

35. Can you usually predict the time of day that the attending physicians will visit the unit? (Check one)

☐ almost never	☐ almost always
☐ sometimes	

36. On average, how frequently do paramedical personnel visit the unit? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

37. Relative to other units, how important are paramedical services to good patient care on your unit? (Check one)

☐ less important	☐ more important
☐ average importance	

38. How frequently do you spend time talking with and helping paramedical personnel? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

39. How frequently do you spend time talking with and communicating the unit's needs to service departments? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

40. How frequently do you spend time arranging for X-rays and/or laboratory tests? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

41. How often does your immediate supervisor visit your unit?
(Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

42. How frequently does your supervisor give you instructions or provide you with guidelines regarding nursing department policies and procedures? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

43. How frequently does your supervisor give you instructions or provide you with guidelines regarding nursing care of patients? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

44. How frequently does your supervisor give you instructions or provide you with guidelines regarding education of nursing staff and/or student nurses? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

45. How frequently does your unit interact with an Operating Room? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

46. How frequently does your unit interact with an Emergency Department? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

47. How frequently does your unit interact with an Ambulatory Care Department? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

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48. How frequently does your unit interact with the Admitting Office? (Check one)

☐ almost never	☐ about once a day
☐ about once a month	☐ several times a day
☐ about once a week	

C. ABOUT JOB SATISFACTION

Beside each of the statements listed below, please indicate whether you are strongly satisfied, satisfied, sometimes satisfied, dissatisfied, or very dissatisfied.

	<u>Strongly</u> <u>Satisfied</u>	<u>Satisfied</u>	<u>Sometimes Dis-</u> <u>Satisfied</u>	<u>satisfied</u>	<u>Very</u> <u>Dis-</u> <u>satisfied</u>
49. How satisfied are you with your opportunity on the job to fully use your skills and abilities?	()	()	()	()	()
50. Are you satisfied with the feeling of accomplishment you get from the work you are doing?	()	()	()	()	()
51. Are you satisfied with the opportunity your job allows you to do important and worthwhile things?	()	()	()	()	()
52. Overall, how satisfied are you with the kind of work you do?	()	()	()	()	()
53. How satisfied are you with your present supervisor?	()	()	()	()	()
54. How satisfied are you with your fellow co-workers?	()	()	()	()	()
55. How satisfied are you with the types of patients you must deal with?	()	()	()	()	()

	<u>Strongly</u> <u>Satisfied</u>	<u>Satisfied</u>	<u>Sometimes Dis-</u> <u>Satisfied</u>	<u>satisfied</u>	<u>Very</u> <u>Dis-</u> <u>satisfied</u>
56. How satisfied are you with the doctors you normally work with?	()	()	()	()	()
57. How satisfied are you with your present salary?	()	()	()	()	()
58. How satisfied are you with the physical conditions of the work place?	()	()	()	()	()
59. Are you satisfied with your workload?	()	()	()	()	()

D. ABOUT DECISION MAKING

Beside each of the following statements please indicate your response by checking () one.

	<u>Never</u>	<u>Seldom</u>	<u>Sometimes</u>	<u>Often</u>	<u>Always</u>
60. How frequently do you make decisions to determine the nursing budget for your unit?	()	()	()	()	()
61. How frequently do you make decisions regarding hiring separate nursing staff of your unit?	()	()	()	()	()
62. How frequently do you make decisions regarding firing nursing staff of your unit?	()	()	()	()	()
63. How frequently do you make decisions regarding evaluation of nursing care?	()	()	()	()	()

- | | <u>Never</u> | <u>Seldom</u> | <u>Sometimes</u> | <u>Often</u> | <u>Always</u> |
|--|--------------|---------------|------------------|--------------|---------------|
| 64. How frequently do you make decisions regarding planning and organizing the nursing unit on a day-to-day basis? | () | () | () | () | () |
| 65. How frequently do you make decisions regarding long-range plans for the nursing unit? | () | () | () | () | () |
| 66. How frequently do you usually make decisions on the promotion of nursing staff on your unit? | () | () | () | () | () |
| 67. How frequently do you make decisions on the adoption of new nursing policies for your unit? | () | () | () | () | () |
| 68. How frequently do you make decisions on the adoption of new nursing care programs (e.g., audit, patient classification, etc.) on your unit? | () | () | () | () | () |
| 69. How frequently do you make decisions about nursing students (e.g., number on your unit, learning experiences, patient assignments) on your unit? | () | () | () | () | () |
| 70. How frequently are decisions made by the nursing staff of your unit made independently from physicians? | () | () | () | () | () |

Beside each of the statements listed below, please indicate whether you strongly agree, agree, disagree, or strongly disagree.

78. Approximately how frequently are formal written evaluation forms usually completed for each nurse? (Check one)
- ☐ every 3 months
 ☐ once a year
☐ every 6 months
 ☐ once every two years
79. Is the written evaluation usually discussed with the staff member?
- ☒ yes
 ☐ no
80. How are medication errors reported? (Check more than one if necessary)
- ☐ verbally to supervisor and physician
 ☐ written on patient chart
☐ written on a special form
 ☐ doctor's signature required
81. How are patient accidents reported? (Check more than one if necessary)
- ☐ verbally to supervisor and physician
 ☐ written on patient chart
☐ written on a special form
 ☐ doctor's signature required
82. How frequently are you required to record on patients' records (i.e., nursing notes)? (Check one)
- ☐ at least once a day (24 hours)
 ☐ several times a shift
☒ at least once a shift
 ☐ no frequency required, only reporting by exception
83. How frequently are you required to update the nursing care plan (Kardex)? (Check one)
- ☐ several times a shift
 ☐ once a week
☐ at least once a shift
 ☐ no frequency required, only reporting by exception
☐ at least once a day
84. Do you have a nursing audit on your unit?
- ☐ yes
 ☐ no
85. How frequently are narcotics checked on your unit? (Check one)
- ☐ at least once a day
 ☐ several times a shift
☐ at least once a shift
 ☐ no frequency required, only reporting by exception

F. ABOUT STRESS

Listed below are a number of situations which may or may not be stressful on nursing units.

(a) Please indicate how stressful each situation is to you on your unit by checking the appropriate space.

(b) Please indicate how often the situation occurs on your unit by checking the appropriate space in the enclosed box.

86. How stressful is it if nursing staff have ~~insufficient~~ resources to do all the things that should be dne?

☐ very little stress
☐ a little stress

How often does this situation occur on your unit?

☐ some stress ☐ never ☐ often
☐ quite a bit of stress ☐ rarely ☐ always
☐ very much stress

87. How stressful is it if nursing staff are unable to satisfy the conflicting demands of various people (e.g., patients, physicians, other paramedical staff, etc.)?

☐ very little stress
☐ a little stress

How often does this situation occur on your unit?

☐ some stress ☐ never ☐ often
☐ quite a bit of stress ☐ rarely ☐ always
☐ very much stress

88. How stressful is it if the scope or responsibilities of a job are unclear?

☐ very little stress
☐ a little stress

How often does this situation occur on your unit?

☐ some stress ☐ never ☐ often
☐ quite a bit of stress ☐ rarely ☐ always
☐ very much stress

89. How stressful is it if there are personality conflicts among nursing staff members?

☐ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

90. How stressful is it if nursing staff are insecure in their nursing knowledge or skills?

☐ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

91. How stressful is it if physicians appear impatient with or hypercritical of nursing staff?

☐ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

92. How stressful is it if physicians are not available when they are wanted?

☐ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

93. How stressful is it if physicians do not communicate well with the nursing staff?

☐ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

94. How stressful is it if a patient's behavior or personality is troublesome?

_____ very little stress
 _____ a little stress

How often does this situation occur on your unit?

_____ some stress
 _____ quite a bit of stress
 _____ very much stress

_____ never
 _____ rarely
 _____ often
 _____ always

95. How stressful is it if a patient is very ill and his prognosis is poor?

_____ very little stress
 _____ a little stress

How often does this situation occur on your unit?

_____ some stress
 _____ quite a bit of stress
 _____ very much stress

_____ never
 _____ rarely
 _____ often
 _____ always

96. How stressful is it if nursing staff are caring for mostly elderly patients?

_____ very little stress
 _____ a little stress

How often does this situation occur on your unit?

_____ some stress
 _____ quite a bit of stress
 _____ very much stress

_____ never
 _____ rarely
 _____ often
 _____ always

97. How stressful is it if nursing staff must perform painful but life-preserving treatments for patients?

_____ very little stress
 _____ a little stress

How often does this situation occur on your unit?

_____ some stress
 _____ quite a bit of stress
 _____ very much stress

_____ never
 _____ rarely
 _____ often
 _____ always

98. How stressful is it if a patient's family is not informed of the condition of one of their members?

_____ very little stress
 _____ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

100. How stressful is it if scheduling and staffing are unpredictable or there are irregularities in the way time-off is scheduled?

☐ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

101. How stressful is it if the workload is so consistently heavy that the nursing staff lack energy for leisure activities?

☒ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

102. How stressful is it if the nursing staff are exposed repetitively to suffering, death and dying?

☐ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

103. How stressful is it if the previous shift often leaves unfinished work that should have been handled during their shift?

☐ very little stress
☐ a little stress

How often does this situation occur
on your unit?

☐ some stress	☐ never	☐ often
☐ quite a bit of stress	☐ rarely	☐ always
☐ very much stress		

104. How stressful is it if the nursing staff are frequently faced with crisis situations which are not considered normal work?

- ☐ very little stress
☐ a little stress

How often does this situation occur on your unit?

- ☐ some stress ☐ never ☐ often
☐ quite a bit of stress ☐ rarely ☐ always
☐ very much stress

105. How stressful is it if nursing staff are asked to relieve on other units of the same specialty?

- ☐ very little stress
☐ a little stress

How often does this situation occur on your unit?

- ☐ some stress ☐ never ☐ often
☐ quite a bit of stress ☐ rarely ☐ always
☐ very much stress

106. How stressful is it if nursing staff are asked to relieve on other units of a different specialty?

- ☐ very little stress
☐ a little stress

How often does this situation occur on your unit?

- ☐ some stress ☐ never ☐ often
☐ quite a bit of stress ☐ rarely ☐ always
☐ very much stress

G. ABOUT TECHNOLOGY

Please check () the types of equipment which are used regularly for patients on your unit. (Check more than one if necessary)

107. () heart monitors, ventilators () medication equipment (e.g., syringes)
 () dialysis equipment () special body lifts
 () I.V. equipment () special beds
 () suction equipment (e.g., gastric, tracheal, wound) () special body frames
 () oxygen equipment, continuous pipeline () parallel bars
 () oxygen equipment, portable () wheelchair, stretcher

- ☐ special physiotherapy equipment
 eg hot wax baths, whirlpool tub
☐ prosthetic appliances
☐ orthotic appliances (e.g.,
 braces, splints)
☐ X-ray equipment, portable
☐ X-ray facilities
☐ E.E.G.
☐ E.K.G./E.C.G.
☐ drainage equipment (e.g.,
 collecting devices)
☐ urinary catheterization equipment
☐ sterile dressing equipment
- ☐ walker, canes, crutches
☐ commode
☐ security room
☐ restraints
☐ handrails, ramps
☐ castroom equipment
☐ isolation room
☐ other(s): specify _____

H. ABOUT YOURSELF

108. How long have you been working on this nursing unit?

- _____ 6 months or less
 _____ 6 months to 1 year
 _____ 1 year to 3 years
- _____ 3 years to 6 years
 _____ 6 years to 9 years
 _____ 9 years or more

109. How old are you?

- _____ under 20 years
 _____ 20 to 29 years
 _____ 30 to 39 years
- _____ 40 to 49 years
 _____ 50 years or more

110. What is your position? Specify _____

111. What is the major specialty of your unit? (Check one)

- _____ medical
 _____ surgical
 _____ intensive care
 _____ rehabilitation
 _____ nursing home
- _____ auxiliary
 _____ paediatric
 _____ psychiatric
 _____ other: specify _____

112. What level of nursing education have you completed? (Check more than one if necessary)

- _____ Master's degree
 _____ Bachelor's degree
 _____ R.N. Diploma
- _____ R.P.N. Diploma
 _____ Other: specify _____

Clinical post-graduate course: specialty _____

113. How many years of nursing experience have you had since completion of your basic nursing education program? (Check one)

☐ less than 1 year

☐ 1 to 3 years

☐ 3 to 6 years

☐ 6 to 9 years

☐ 9 years or more

THANK YOU VERY MUCH FOR YOUR COOPERATION.

APPENDIX C

NURSING ADMINISTRATOR QUESTIONNAIRE

NURSING ADMINISTRATORS INTERVIEW

STAFFING

UNITS IN THE STUDY

1. Hospital Unit No. _____
2. Research Code _____
3. Specialty _____
4. No. of beds/unit _____
5. Total Staff (FTEs) _____
6. No. of RNs (or
above qualificatons) _____
7. No. of CNAs and
Nursing Orderlies _____
8. No. of Nursing
Assistants _____
9. No. of Clerical Staff _____
10. No. of Leadership
Positions: _____
Headnurse _____
Assistant Headnurse _____
Team Leader _____
Other _____

QUESTIONNAIRE TO BE COMPLETED BY NURSING ADMINISTRATORS

1. What is your position in the hospital? _____
2. How long have you been in your position? _____
3. What level of nursing education have you completed? (Check more than one if applicable)

_____ Master's degree	_____ R.N. diploma
_____ Bachelor's degree	_____ Other: specify _____
_____ One year post-basic diploma	
_____ Clinical post-graduate course: specialty _____	
4. How many years nursing experience have you had since completion of your basic nursing education program?

_____ less than 1 year	_____ 6 to 9 years
_____ 1 to 3 years	_____ 9 years or more
_____ 3 to 6 years	
5. Number of hospital beds? _____
6. Type of hospital?

_____ acute general	_____ nursing home
_____ auxiliary	_____ other: specify _____
7. Teaching hospital:

_____ yes	_____ no
-----------	----------

DOCUMENTS

Complete for each nursing subunit. A check () indicates "yes". Which of the following written documents are available on each nursing unit?

UNITS IN THE STUDY

8. Hospital Unit No. _____
9. Research Code _____
10. Contract of _____
employment _____
11. Information booklet _____
about unit _____

UNITS IN THE STUDY

- | | |
|--|-------|
| 12. Hospital organiza-
_____ zional chart | _____ |
| 13. Hospital orientation
_____ (written handouts) | _____ |
| 14. Unit orientation
_____ (written handouts) | _____ |
| 15. Nursing procedure
_____ manual | _____ |
| 16. Special procedures
_____ manual | _____ |
| 17. Hospital policies
_____ manual | _____ |
| 18. Nursing policies
_____ manual | _____ |
| 19. Special policies for
_____ the unit | _____ |
| 20. Instructions/guide-
_____ lines for shift work | _____ |
| 21. Condition sheets
_____ | _____ |
| 22. Kardex
_____ | _____ |
| 23. Position descriptions
_____ for RNs | _____ |
| 24. Position descriptions
_____ for CNAs | _____ |
| 25. Position descriptions
_____ for Nursing Orderlies | _____ |
| 26. Position descriptions
_____ for Nursing Orderlies | _____ |
| 27. Position descriptions
_____ for Assist. Headnurse | _____ |
| 28. Position descriptions
_____ for Team Leader | _____ |

UNITS IN THE STUDY

29. Position descriptions
_____ for Ward Aide

30. Position descriptions
_____ for Clerical Staff

31. Position descriptions
_____ other available?
(specify)
